Genetic and Areal Stability of Phrasal Word Order
And
Its Potential as a Typological Marker

By

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Abstract

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This dissertation investigates, in several unrelated language families and stocks, the connection between several phrasal word order (PWO) patterns and three structural features (clausal alignment, head/dependent marking, and morphological complexity) for the purpose of establishing whether these phrasal word order patterns can be considered as typological markers. The study follows the theoretical postulates and the research methods proposed by Johanna Nichols (1992).

Three types of PWOs that do not correlate with the clausal word order (CWO) of verb and object, namely the order of adjectives and nouns, demonstratives and nouns, and intensifiers and adjectives, were compared to clausal alignment, head/dependent marking, and morphological complexity.

Frequency distributions of the three PWO features were consistent with previous studies in this area. Demonstrative-noun word order was found to be the

most skewed, with 67 percent of languages showing pre-nominal demonstratives. Tests for genetic and areal stability indicated that the three PWO features behave differently than CWO. Adjective-noun order, demonstrative-noun order, and intensifier-adjective order are surprisingly to varying degrees more genetically stable than anticipated. All three of the PWO features were found to be less areally stable than CWO. Chi square analyses yielded significant results regarding the relationship between adjective-noun word order and morphological complexity, as well as between intensifier-adjective word order and morphological complexity. Based on an evaluation of the geographical distribution of the PWO features, it was concluded that adjective-noun word order demonstrated a larger than continental scale of patterning. The results of demonstrative-noun word order and intensifier word order for geographical patterning were less revealing. Based on the overall results on frequency distribution, levels of genetic and areal stability, clustering of features, and scale of geographical patterning, it was concluded that adjective noun word order has the potential to be a typological marker as defined by Nichols.

Contributions were made to the field of typology, areal linguistics, and historical linguistics including remote relations. Among the suggestions for future research were: continuing the exploration for typological markers, expanding the resources available for study, investigating demonstrative word order in residual

zone settings and examining further the relationship between PWO and morphological complexity.

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CHAPTER 1: INTRODUCTION

1. Preliminaries

For those studying the history of one or several languages there is a received wisdom about how far one can turn back the hands of time. Historical linguists who rely on internal reconstruction methods are only able to ferret out some of the essential elements of a specific language up to about several thousand years into the past (Jeffers and Lehiste, 1979; Aitcheson, 1991; Lass, 1998). For their part, historical linguists who use the comparative method can with varying degrees of confidence establish filiation and reconstruct protolanguages as far back as 6,000 to 8,000 years ago and only on rare occasions up to 10,000 years (Nichols, 1995a). To detect more distant relatedness and affinities, other means of research design are required. The work of Johanna Nichols (1992; 1998) has been one source of ideas on how to accomplish this task.

In her efforts to detect relatedness past the 8,000 year mark, Nichols (1992) has made use of hypotheses proposed by the Russian linguist Georgij Andreevich Klimov. Klimov (1974) believed that the type of clausal alignment e.g., stative-active, accusative, or ergative was a crucial predictor of other accompanying grammatical traits. For example, languages of the

stative-active type are likely to have: SOV word order, direct object incorporation into verb, richer verbal morphology (a verb that is more richly inflected than the noun), inclusive/exclusive pronoun distinction in first persons, and a distinction between alienable and inalienable possession. Based on his observations, Klimov had conjectured an evolutionary path for the development of clausal alignment language types. Among his claims was that the stative-active was the later result of an evolutionary sequence. He based this on the fact that the stative-active type predominates in the New World, the last area to be colonized by humans.

This co-occurrence of structural features postulated by Klimov led Nichols to explore the relationship between clausal alignment and a variety of other grammatical features, such as clausal word order, the orderings of subject, verb and object(s), head or dependent marking, and morphological complexity. As part of her interest in relationships at greater time depths, Nichols' goal was to ascertain whether the assumption was accurate that these features enjoy long-term stability and whether the stability is the result of genetic relatedness or diffusion. While in her search for deep-time connections between languages Nichols has considered clausal word order, it is significant that her research has not looked at phrasal word order in the same manner.

This dissertation investigates, in several unrelated language families and stocks, three types of phrasal word order (PWO) that have not been investigated by Nichols and that do not tend to correlate with the clausal order of verb and object. Here we first give an overview of the study, using technical terms that are current in the study of linguistic typology but for which, nevertheless, definitions are provided at the end of the present introductory material. The study compares PWO to the following three structural features:

- Clausal alignment of arguments (henceforth "Alignment")
- Head or dependent marking (henceforth "H/D")
- Morphological complexity (henceforth "Complexity")

The research techniques of Nichols are employed in pursuit of this effort.

Three types of PWO — the order of demonstratives and nouns (*that dog*); the order of adjectives and nouns (*blue sky*); and the placement of adverbial intensifiers of adjectives (*very small dog*) — are compared with these three above-mentioned structural features (Alignment, H/D and Complexity) in terms of **areal stability** and **genetic stability**. The interaction of PWO with the three structural features is also studied. That is, this study also attempts to determine if there is an interrelationship between each of the PWO features and the aforementioned structural features.

The findings of this study contribute to the field of typology by increasing our understanding of how genetically and areally stable these three PWO features are and how they interact with the aforementioned structural features. They also contribute directly to the field of *contentive* typology (to be defined later) by clarifying whether these features can be seen as part of a language type. This dissertation makes a contribution to *population typology* as one of the features, adjective noun word order, was found to be a *typological marker* (to be defined and discussed later). These gains in typology also benefit the field of historical linguistics. Furthermore, this research contributes to areal linguistics by improving our understanding of the distribution of these features throughout the world. As previously stated, these three PWO features were chosen because it has been proposed that these features are not correlated with CWO features and thus behave differently (Dryer, 1992b). Additional support for this assertion was obtained. Thus, we are able to more fully articulate how each of these PWO features behaves in its own right.

As a result of this research, we have a better idea of what will and will not help us in our quest for breaking through the 8,000 year cut-off. We also now have a slightly better appreciation of what is likely to have occurred in the past. Specifically, the demonstrative noun word order relationship

supports and suggests that this PWO feature has a long history in all languages.

2. Nichols' Findings on Clausal Word Order

Among Nichols' (1992) consistent findings was that clausal word order (CWO), when compared to Alignment, Complexity, and H/D, was the least genetically stable feature and the most susceptible to areality. Figure 1 depicts that alignment is genetically the most stable while CWO is the least stable. Figure 2 illustrates the observation that CWO, while not genetically stable, is areally stable. An interpretation of these findings would be that the same word order type is more likely to be found in a particular area but not necessarily in the same language stock. Finally, Nichols found that CWO could be described as "sub-continental" in dimension i.e., CWO is an areally strong but "small-scale" feature.

FIG. 1 GENETIC STABILITY OF STRUCTURAL FEATURES

Genetically most stable **Genetically least stable**

Alignment > H/D >Complexity > CWO

FIG. 2 AREAL STABILITY OF STRUCTURAL FEATURES

Most areal **Least areal**

CWO> Alignment >H/D > Complexity

Nichols admitted that her use of word order was "crude" as she focused only on word order at the clausal level, ignoring word order at the phrasal level. Her primary concern was to "raise questions" about the interaction of CWO with other grammatical features. She found that verb-initial order and free CWO favor head marking, whereas verb-medial and verb-final CWO favor dependent marking. These correlations were considered universal tendencies. As for the relationship of CWO and morphological complexity and CWO and alignment, she found no valid correlations. As a result of her findings, she concluded that CWO cannot serve as a typological marker.

3. Rationale for the Present Study

What about word order on a phrasal level? The features of PWO that are investigated here are those that are not highly correlated with the position of subject, verb and object. For obvious reasons, a study of those highly correlated features would be unlikely to yield any different or more helpful results than those already obtained by Nichols. Dryer (1988, 1992b & 1996)

has done extensive and comprehensive typological work on identifying PWO features that do and do not correlate with the order of verb and object. Three types of PWO were found to not correlate: the word order position of adjectives and nouns, demonstratives and nouns, and intensive adverbial modifiers of adjectives. With this in mind, there are four questions that this study addresses:

1. Are any of the aforementioned PWO features more or less genetically stable than CWO, Complexity, H/D and Alignment?

2. Are any of the aforementioned PWO features more or less areally stable than CWO, Complexity, H/D and Alignment?

3. Are any of the aforementioned PWO features more autonomous and predictive than CWO with regard to Klimov types?

4. Do any of these PWO features pattern geographically on a continental scale or larger?

As stated previously, when Nichols began her research, it was with the intent of testing Klimov's assertion that languages tend to cluster into types. The relationship of PWO to these types i.e., Alignment, Complexity and H/D are examined in the present study in order to determine whether any of these PWO features were predictive of the presence of other grammatical features to a greater or lesser extent than CWO.

According to Nichols, the relative frequencies of linguistic structures can be partially accounted for by basic unmarkedness, grammatical stability,

and universal correlations between structures. Essentially, what Nichols is saying is that these three explanations can account for a considerable and quantifiable amount of the frequency of linguistic structures found in languages. For example, unmarked patterns in a language tend to be the most frequent type found in a language as compared with marked patterns.

However, another important component to consider is the role of geography. In order to isolate geography's role, it is necessary to compare "geographically-based populations of languages in their relative frequencies of features…"(Nichols, 1992 p. 184). Features that have the potential to be most instructive about geographical distribution are those that have considerable genetic and areal stability. Genetically stable features are good candidates, since we can be confident that their presence in several stocks is indicative of a connection that has considerable time depth and that this connection is not simply the result of "recent convergence" (p.184). Areally consistent features also would be good candidates, because this would ensure that genetic relatedness is not the only contributing factor to stability. In addition, one would want the ideal feature to persist even when new languages are introduced into the area. Finally, the most revealing features will exhibit a "large scale of geographical patterning" (Nichols, 1992 p 185).

Thus, those features that have at least: moderate genetic stability, fair areal consistency, fair grammatical stability and a scale of patterning continental or larger in size could offer insight into possible deep connections and disparities among large geographical areas**.** Just as genetic markers are used to test for affinities and divergences within and between biological populations, these *structural or typological markers* can be used in a likewise fashion to gauge for affinities and disparities that are not amenable to the comparative method. Of the four structural features she investigated, H/D marking was found to be the most promising as a typological marker because it demonstrated: 1) moderate genetic stability, 2) fair areal stability, 3) fair or better grammatical stability and 4) a large scale of geographical patterning.

4. Definition of Terms

In order to have a fuller understanding of the intent of this study, it will be necessary to define some crucial terms, clarify some important concepts as well as explain the reasoning for some decisions made in the design of this project. In what follows, we provide extensive discussion of the following notions: stability, alignment, head or dependent marking, complexity, typology, areal linguistics, remote relations, adjectives and demonstratives.

4.1 Stability

Stability, as used in this study, has three distinct meanings. First, it can mean genetic inheritance where a grammatical property remains unaltered so that most of the daughter branches of a language family possess the trait (Nichols, 1992). Other words used to refer to this type of stability are *diachronic persistence* or *historical conservatism*. Under this definition, stability should be construed as a minimal likelihood of having been borrowed and a maximal likelihood of having been inherited (Nichols, 1995a). Nichols cautions against confusing stability with immutability; rather, stability should be thought of as gradient in character.

Under a second definition, stability can also refer to situations where "one structural feature predicts another, implies its presence, or limits its functional or distributional properties" (Nichols, 1992, p.1). In this capacity stability can serve as a typological predictor. For example, Nichols has found that head marking favors low morphological complexity, whereas dependent marking favors high complexity. In other words, if one were to identify a language as being of the head-marking type, there would be a greater likelihood of low morphological complexity. This type of stability is known as *grammatical stability*. Finally, under a third definition stability can also be used to describe the consistent presence of a property over a

significant land area. This type of consistency is termed *areal stablility* (Nichols, 1992).

4.2 Alignment

Alignment has to do with the treatment of subjects and objects in relation to transitive and intransitive verbs. Typically languages handle the concepts of subject and object as well as the semantic notions of agent-patient in distinctive ways and markings. How these nominal and verbal notions are categorized is a crucial aspect of alignment. The three types of alignment that are most frequently cited are accusative, ergative and stative-active. The following is a more detailed discussion of the three types.

Accusative type languages are distinguished by the identical grammatical treatment of subjects of intransitive and transitive verbs, while the direct objects of transitive verbs are marked differently (Trask, 1993). English is a language of accusative alignment type as in the following:

He ran. He hurt **him**
He donated used furniture.

Observe that no distinction is made between the subjects of a transitive and an intransitive clause, while the object is treated (i.e., marked) in a different manner from the subjects.

In ergative languages the subjects of intransitve verbs and direct objects are similarly marked in contrast to the subject of transitive verbs (Dixon, 1995). For example, in Basque:

Ni-k neska ikusten dut.	**Ni** etorri naiz.
I-ERG. girl see AUX	I come AUX.
"I see the girl."	"I have come."

Adapted from Comrie et al. (1996)

Note that the subject of the transitive sentence, *ni* is marked by the suffix *k* while the object of the transitive verb, *neska*, as well as the subject of the intransitive verb are unmarked.

Dixon (1995) offers another example from Dyirbal:

ŋuma	banaga-nu	
father+ABS	return-NONFUT	
father(S) returned		
yabu	banaga-nu	
mother+ABS	return-NONFUT	
mother(S) returned		
ŋuma	yabu-ŋgu	bura-n
father+ABS	mother-ERG	see-NONFUT
mother(A) saw father(O)		
yabu	numa-ŋgu	bura-n
mother+ABS	father-ERG	see-NONFUT
father(A) saw mother(O)		

Dixon (1995)

One can observe that there is no marking on the noun when it is an intransitive subject, however when it is a transitive subject it is marked by the ergative case ending, *-ŋgu*.

Stative-active languages are characterized by the identical treatment of agentive subjects of both transitive and intransitive verbs in contrast to the non-agentive subjects and direct objects (Trask, 1993). In other words, the language has two different kinds of intransitive verbs, one which takes the same subject marking as used with transitive verbs versus the other which takes a subject whose marking is the same as that of the direct object of a transitive verb. In general, agentive subjects are paired with active verbs whereas non-agentive subjects are paired with stative verbs. For instance, in Eastern Pomo there are two subject pronouns based on agency and one based on the non-agency of the subject.

Há: mí:pal Šá: ka	**Há**: wádu:kìya	**Wí** ʔéč: kìya
I killed him	I'm going	I sneezed

Adapted from Trask (1993)

As one can see from the above example, the agentive subjects of the verbs, kill and go are treated differently from the non-agentive subject of the verb, sneeze. Depending on the language, context can also play a role in the choices that a speaker makes when pairing an agent/non-agent subject with an active/stative verb.

The following is offered as clarification on the three types:

A refers to subject (agent) of a transitive verb
A_1 refers to subject (agent) of an intransitive verb
O refers to direct object
S refers to subject of an intransitive verb
S_1 refers to non-agentive subject of intransitive verb (stative).

Accusative:	S=A; O distinct
Ergative:	S=O; A distinct
Stative-Active:	$A=A_1$; S_1

Partially adapted from Nichols (1992)

4.3 Head or Dependent Marking

Head or Dependent marking (H/D) has to do with the location of morphological marking on either the head or the dependent of a construction. The head is the central element in a syntactic construction. In a noun phrase the head is the noun; in a prepositional phrase, the head is the preposition. The dependent can be construed as that element which is either licensed by the head or is modifying the head (Nichols, 1986; Nichols, 1992; Trask, 1993; Dixon, 1997 & Whaley, 1997). Consider the following phrases from English and Hungarian:

a. The man's house (possessor marked)
b. Az ember h'az-a
   The man house-3S (possessee marked)

(Nichols 1986)

In English, marking is on the dependent, whereas in Hungarian the marking occurs on the head of the phrase. The following may help to clarify:

Constituent	Subtype (dependent)	Head
NP	Noun possessor	Possessed noun
	Pronoun possessor	Possessed noun
	Modifying adjective	Modified noun
PP	Noun object	Adposition
	Pronoun object	Adposition
S	Noun subject, direct object and indirect object	Verb
	Pronoun subject, direct object and indirect object	Verb

Partially adapted and modified (Nichols, 1992)

4.4 Complexity

Complexity as defined by Nichols (1992) is simply the total of dependent, head, and free or floating markings that are found in the NP's and sentences of the language (Adpositional Phrases are not included as many languages either lack such an item or the grammar descriptions available fail to address the morphology of adpositions.). Free or floating markings are detached markings, neither attached to the head or the dependent. Examples might be cliticized pronouns as well as tense and modal particles.

Nichols acknowledges that this may appear to overlook a great deal of morphological complexity as it only captures whether and where the marking occurs and not how and what is being communicated by the marking. She

claims that this simplified scoring method "correlates straightforwardly with overall morphological complexity" (p. 64). A more detailed discussion of how she scores for complexity appears in Appendix IV.

4.5 Typology and Areal Linguistics

Some additional concepts that need to be addressed in this section are those of *typology* and *areal linguistics*. Nichols has taken these concepts in conjunction with the idea of genetic relationships and, in a sense, found additional ways to use the insights gleaned from these areas to further her own research agenda. She established a new sub-discipline within linguistics known as *population typology* that borrows some of the key concepts and techniques of population biology. Just as population biologists look at genetic markers to trace and establish relationships among different populations of animals or plants, population typologists use *linguistic markers* in an attempt to detect affinity between languages at great time depths.

These ideas are of importance to this dissertation study as there was the possibility that the PWO features investigated here might serve as what Nichols terms *typological markers*. Among the characteristics of typological markers are linguistic features that have at least moderate genetic stability,

fair grammatical stability, fair areal consistency, and a scale of patterning continental or larger in size. It is Nichols' belief that typological markers can offer insight into possible deep connections among languages and families of languages.

Among other things, typological data enables the researcher to identify common patternings of varying strength that cut across many languages. These common patternings are called *universals*. Language universals say something about what properties are fundamental to natural human language (Croft, 1990; Comrie 1989; & Comrie et.al 1996) One of the benefits of typological data is that it provides the opportunity to differentiate between those linguistic patternings that are universal (in the absolute and statistical senses of the word) and those that are genetically or areally based. This form-based typology is often contrasted with *contentive typology,* which is concerned with how languages present actions and states e.g., accusative, ergative, transitive and intransitive as well as the clustering of other features of language with these states. In the introduction, it was mentioned above that stative-active languages tend to have other grammatical traits associated with stative-active type languages. This is representative of contentive typological notions.

Areal linguistics is the study of "resemblances among languages" as a function of geographic relationships (Masica, 1992). Areal linguistics can also be conceived of as the study of an area in which structural features are shared by several languages that are a result of borrowing or diffusion. In terms of observations and interpretations, the approach of areal linguists can be either synchronic or diachronic.

Historically, areal linguistics was concerned with describing the features of a specified geographical area. Similar features provided the basis for determining diffusion of structural features once genetic factors had been taken into account. Comrie (1989) noted that for a shared feature in a geographical area to be considered as a result of contact, there had to be several conditions met. First, obviously it had to be determined that there was no genetic origin. Second, there had to be a level of uniqueness to the feature so that it was unlikely to be the result of chance. Third, the feature had to be unique enough that it could not be subsumed under the heading of a language universal.

As mentioned previously, areal linguistics traditionally has focused on similar features within areas. Nichols (1992, 1995b, & 1998) changed the focus of areal linguistics by mapping the geographical distribution of different features. The consequence of this change in focus is that both

similarities and differences can be used to promote the science of areal linguistics. Instead of looking at one area and its makeup of features, a number of areas are typologically assessed. Linguistic diversity becomes a feature.

One of Nichols' goals is to identify areally stable features, as well as to identify typologically and genetically stable ones. Her intention is to use this information to clarify "…genetic, geographical and universal determinants of linguistic patterning" (1992, p. 1). The combined findings based on genetic relatedness, typology and areal linguistics allow researchers to hypothesize linguistic connections at great time depths, as well as population flows and migratory patterns of humans during early modern humans' expansion and colonization of the Earth. Ultimately, what is being inferred is the "general fact of language spread" (Nichols, 1992). What caused the spread is another issue. Was language spread a result of the speaker population migrating, the speaker population expanding demographically, a speech community shifting to the language of a powerful or prestigious neighbor, or some combination of these? Or is it genetic affiliation? The exact answer may not be uncovered. Only the fact of some sort of relationship is evident. Nichols (1998) is a prime example of how this is accomplished.

4.6 Remote Relations

This attempt at establishing linguistic connections well beyond the comparative cutoff point is known as *remote or very remote relations* (Trask, 1996). This dissertation makes a direct contribution to the problem of deep-time relations by helping to clarify what can and cannot be used to postulate long-term affinities.

Another linguist whose work is also identified with this sub-discipline of historical linguistics is Joseph Greenberg. Greenberg is perhaps best known for his seminal work in typology that is credited with providing the major impetus for the field of typology (Comrie, 1989; Trask, 1996; Newmeyer, 1998). His efforts at large-scale classification of languages are another area where he has gained considerable attention and notoriety.

Beginning in the 1950's, Greenberg used a method known as *multilateral comparison* to look at the 2,000 languages that make up the languages of Africa. He did this by a " rapid inspection" of hundreds of lexical items and grammatical forms from hundreds of languages. Those languages showing a considerable number of resemblances were then grouped together (Rhulen, 1994; Trask, 1996). Based on his observations, Greenberg reduced all the languages of Africa into four phyla or super-families: Niger-Kordofanian, Nilo-Saharan, Afroasiatic, and Khosian.

While his methodology drew skepticism in some corners, his classificatory scheme has withstood the test of time (Heine and Nurse, 2000). According to Douglas Pulleyblank (1990), even though there have been refinements, there have been no major refutations of Greenberg's work as it pertains to the classification of African languages and their implied affiliations in remote time.

Greenberg next applied the multilateral comparison method to New Guinea and the surrounding area. In this linguistically dense region of the world, he identified a new super family, Indo-Pacific. His observations met with mixed reviews; some thought them brilliant, others were less receptive to his ideas (Trask, 1996). In 1987, he tackled the classification of the 650 languages that comprise the Americas. Greenberg concluded that there were three distinct families: Eskimo-Aleut, Na-Déné, and Amerind. He further suggested that this was an indication of three distinct migrations into the Americas. Eskimo-Aleut and Na- Déné had long been agreed upon language families among language specialists of the Americas. However, the lumping of approximately 600 languages under Amerind was and is considered highly controversial (Hock and Joseph, 1996; Trask, 1996).

Independent support for Greenberg's hypothesis has come from other disciplines, specifically, genetics and anthropology. Luigi Luca Cavalli-

Sforza (2000), a geneticist, had been collecting data worldwide on polymorphisms of genes including those of Native Americans. Significantly, Cavalli-Sforza identified three distinct population groups whose distribution corresponds quite well to the three groups suggested by Greenberg's New World families. In addition, Christy Turner, the physical anthropologist, arrived at similar conclusions based on the dental anatomy of native-Americans (Trask, 1996). Here is an instance of linguistic evidence regarding links in remote time being employed with other observations to arrive at conclusions about human origins and migratory patterns.

Greenberg is important because he was one of the first and the most notable linguist to posit and promote the remote relations agenda. Nichols is important to this sub-discipline of historical linguistics because her ideas offer new approaches, methodologies and perspectives on the question of long-term affiliations. There are some important differences between Greenberg and Nichols, however.

Implicit in Greenberg's efforts is a hierarchical classification of languages (Fox, 1995). In other words, Greenberg's intent is comparable to Linnaeas' classificatory scheme of biological life forms. This means that ultimately a protolanguage has to sit atop the classification system. This is not the intent of Nichols (1992). In fact, her position is that this is an

unreasonable goal, as even she is not convinced one can go that far back in time. Second, Greenberg's position requires one to subscribe to a monogenesis account. Nichols would not be a willing player in that of kind of thinking. Her research led her to conclude that a polygenesis account is a much more likely scenario (Nichols, 1998).

While Greenberg uses multilateral comparison to make assessments of genetic relatedness and the hierarchical nature of the languages involved, Nichols uses the feature data of many languages to ascertain genetic and areality stability. Furthermore, her use of the diverse features of language is designed to buttress her views on how languages are connected and how humans have populated the Earth.

Finally, her conclusions about when the New World was first inhabited, specifically North America and South America, is seriously at odds with the conclusions one has to reach in order to accept Greenberg's assessment. Greenberg's reduction of all the North and South American languages to three families requires a later entry into the New World than what Nichols (1990) believed happened based on her analysis of the data.

With the identification of a new typological marker in the ordering of adjective and noun, the sub-discipline of remote relations study has been served by the present study. Furthermore with the rejection of two other

potential typological markers, there has been a winnowing down of options for typological marker status. In and of itself, that is valuable because it means that we can concentrate on those matters that have greater potential. As Trask (1996) states, we want information about the peopling of the Earth and if Nichols or anyone else can offer insights, it behooves us as scientists to take notice. According to Fox (1995), typological data has taken on a greater role in historical linguistics reconstruction efforts. Recently, there has been subtle but important movement toward recognizing that those who pursue the sub-discipline of remote relations may be on to something. This dissertation in some ways is emblematic of the receptiveness that is beginning to emerge in this area.

In summary, this dissertation has helped to narrow the scope of further research in this area. As a result of this dissertation, we know some things we did not previously know that relate to remote relations. Since we know better what does not work, our minds can turn to a slightly smaller body of evidence to sift through.

5. Adjectives

5.1 What is an Adjective?

Because this dissertation deals with PWO, the question of word categories becomes important, since it is in terms of these categories that cross-linguistic similarities and differences are established within phrases. A particularly difficult issue arises in the study of the category of adjectives. The following observations and concerns expressed by some of the authors of grammars used in this study reflect the categorical dilemma that can arise when discussing adjectives.

Bright (1957) states that in Karok, a Native American language, an adjective is a noun that fulfills two conditions. First, it occurs with –sa Plural. Second, it occurs as the second member of a compound "…except in certain cases where it may be either first or second member, interchangeably" (p. 69). Waterhouse (1962) when discussing the grammatical structure of Oaxaca Chontal makes no mention of adjectives, but notes the modifying properties of nouns, demonstrative pronouns and pronouns. Newman (1965) claims that in Zuni adjectival notions are transmitted by stative verbs. Kuipers (1967) makes no mention of adjectives in his grammar on the Squamish language. In contrast, Haag (1998) claims that the Salishan

languages cleave along lexical categorical lines including adjective. Fahner (1979), when discussing Dani and Yani morphology, suggests that word class terms might have to be applied differently in these (Dani and Yali) languages. He does not elaborate on why this is so. Pitkin (1984) in his grammar of Wintu makes no mention of adjectives, per se, but instead talks of adjectival verbs.

Campbell (1991) in discussing Hausa, a Chadic language of Africa, states that there are "…no distinctions between adjectives and other nominals. Attributive nominals precede the noun they qualify" (p.676). Shepherd (1997) who worked on a book of texts based on the Wintu language describes four classes of words: substantives, verbs, sentence connectives e.g., *then* or *while* and uninflected words such as conjunctions, adverbs and directionals. Later, she comments, "words modifying nouns (*black* as in *black cat)* usually precede the nouns they modify…" (p. 35). Kim (2005) claims that Korean lacks a distinct open category of adjective, while Sohn (2005) states unequivocally that Korean has a distinct adjective class. The controversial and at times murky nature of what an adjective is clearly takes on great significance in this study.

5.2 Historical Perspective

The notion of adjective is rooted in the western classical tradition (Malmkjær, 1991). Initially, the grammarians of classical and medieval times had identified eight parts of speech: noun, verb, participles, pronoun, preposition, adverb, interjection, and conjunction (Dinneen, 1967). The most influential work during this time period was the work of Priscianus Caesareinis. His eighteen-volume *Commentarii grammatici* published in the sixth century was long considered a standard text. In this work Caesareinis made a distinction between substantival nouns and adjectival nouns. By the 12th century, this distinction was in need of repair due to changes that had occurred in the Latin language (Dinneen, 1967). Specifically, grammarians began looking more earnestly at the syntax of Latin and saw that substantival nouns were independent word classes, whereas adjectival nouns were consistently found in constructions with nouns (Baker, 2003).

During this time period, Peter Helias, a University of Paris teacher, attempted to rectify the situation by further developing the distinction between substantival nouns and adjectival nouns (Dinneen, 1967). This was to be the precursor of today's linguistic categorization of nouns and adjectives (Malmkjær, 1991). According to Vinokurova (2005), Beauzée's

eighteenth century *Grammaire Générale* was when the adjective was first accorded the status of a separate word class.

The descriptivist tradition recognized the trap that awaited those who ventured into "exotic" languages (Sampson, 1980). The categories that seemed to work so well for the Indo-European and Western Asian languages did not seem to accommodate those who were looking at the Native American languages. Boas (1911) called into question what a word is, what a sentence is and, most importantly, what a word class is. His conclusion was:

> "…different fundamental categories will be found, and that in a comparison of different languages it will be necessary to compare as well the phonetic characteristics as the characteristics of the vocabulary and those of the grammatical concepts in order to give each language its proper place " (p.43).

Sapir (1921) amplified these points when discussing the concept of an adjective. For example, if one says *it is red,* the Western classical tradition defines *red* as a quality word or more specifically, as an adjective. However, in some languages *is red* is not a verb followed by an adjective, but rather a verb in the same way that *pretends, dances or sleeps* are verbs. Yet, the idea of saying *it reds* seems and feels alien to our Westernized notions of word classes. Sapir noted that languages not only "verbify" the concept of a quality, but other languages "nounify" these concepts. For example, in

English one says *the big table,* however, in Chinook one would say *the-table it-bigness* while in Tibetan one might say *a table of bigness*.

By the time of Bloomfield (1933), logical positivism and behaviorism was exerting tremendous influence on the scientific community. Even though Bloomfield refers to *adjectives*, he also makes clear that forms of speech are to be identified solely by their inflectional and syntactic behavior; "…Meanings can not be defined by our science" (p. 167). The reason for this elimination of meaning was because Bloomfield believed that to rely on meaning was to succumb to the illusion of introspection, which was considered anathema to scientific thinking at the time (Sampson, 1980).

Chomsky (1970) posited that the "major" word classes have syntactically distinctive features captured in the matrix below:

	+N	-N
+V	A	V
-V	N	P

The intent of this matrix is to demonstrate that there are supercategorical generalizations that can be identified. For example, in English only verbs and prepositions can take NP complements. The converse of this statement is that nouns and adjectives cannot take complement NP's (Radford, 1988).

Radford offers a universalist perspective by pointing out that in Italian only nouns and adjectives are inflected for gender. An implication of this matrix is again to engender the idea that adjectives and nouns form a natural class, thus sharing a bond not unlike what was proposed fifteen hundred years ago by Caesareinis .

Of greater significance is the further divorcing of meaning from other structural components by the generativists. Jackendoff (1994) states, "We conclude that parts of speech, the basic units of syntactic structure, are not definable in terms of meaning" (p. 69).

One field of linguistics where meaning was not going to be eschewed was the study of universals and linguistic typology. Greenberg (1963) upon first presenting his seminal work on cross-linguistic findings stated that meaning had to be employed. Greenberg believed that inherent in this discovery process was the assumption that there were such things as: subject predicate constructions, differentiated word classes, and genitive constructions, to name a few that would be evident in diverse languages. In order to study linguistic phenomena with differing structures, it would be necessary to rely on semantic criteria. Greenberg posed the following scenario: Imagine formulating a definition of a noun that equated in a language glosses such as *boy, nose and house* with *eat, drink and give* in

another. According to Greenberg, this would be rejected on "semantic grounds."

According to Dixon (1977), when a linguist is studying a new language, the linguist relies on grammatical criteria internal to that language to establish the word classes pertinent to that language. Dixon's opinion is that noun and verb classes can always be identified. Adjective word classes, on the other hand, are not on the same firm ground. From Dixon's perspective syntactic properties of a lexical item are derived from their semantic description. "Semantics is thus held to be prior to syntax" (p. 24).

Dixon observed that when languages do have a major Adjective (sic) class, there is considerable semantic correspondence between them. Even when languages have a limited Adjective class, there still is considerable overlap in the concepts conveyed. For example, the Chadic language Hausa has 12 members comprising its word class Adjective. They are:

babba	'big'	quaram	'small'
		qanqane	'small'
dogo	'tall, long'	gajere	'short'
sabo	'new'	tsofo	'old'
baqi	'black'	fari	'white'
		ja	'red'
		mugu	'bad'
		dasye	'fresh, unripe, raw'

Notice that size, color and value are among these concepts and that oppositions e.g., *big* vs. *small* involve nine of the 12 words.

In this study Dixon wanted to discover what constituted typical adjective types, as well as to identify word class affiliations in those languages either lacking or profoundly deficient in adjectives. For example, in English the seven semantic types that comprise the Adjective word class are:

Age – e.g., *old, young, new*
Dimension – e.g., *big, large, little*
Value – e.g., *good, bad, proper, excellent, delicious, atrocious, poor*
Color – e.g., *black, white, red*
Human Propensity – e.g., *jealous, happy, kind, curious, generous*
Physical Property – e.g., *hard, soft, heavy, light*
Speed – e.g., *quick, fast, slow*

Dixon looked at 17 languages with small closed class of adjectives; two languages (Yurok and Samoan) in which adjective types are found in the verb class; and two languages (English and Dyribal) that have large open class of Adjectives.

Among his findings were: Age, Dimension, Value and Color types are likely to belong to the adjective class, however small it is. For example, in the small adjectival class of Hausa size, color and value are present. Further, in small adjective class languages Human Propensity is predominantly associated with the noun class. For Physical Property, a small adjective class

is likely to be associated with the verb class. The Speed class is found to be closely associated with Physical Property. In other words, if Physical Property is associated with the adjective class so would the Speed type. If the Physical Property is associated with the verb class, the Speed class is likely to be associated with the adverb class. This research suggests that adjectival systems have some sort of organizing principles involved in their development within the larger language system.

5.3 Contemporary Views

Croft (1990), Baker (2001) and Beck (2002) also note that adjectives appear to be particularly prone to ambiguous class membership. While languages can have words with meaning such as *green, good, big and white,* they may behave grammatically like verbs or nouns (Baker, 2001). For example, in Mohawk tense and agreement affixes are found directly attached to *adjectives* like other verbs.

Thikv kanujsha' ka-rakv-hne'.
That house it-white-Past
'That house used to be white.' (literally, 'That house whited.')

(Baker, 2001)

However, in Mohawk these *adjectives* do behave slightly differently than regular stative verbs. For example, these adjectives cannot be found in the

punctual or habitual aspects. Another special property of these *adjectives* is that they incorporate animate object agreement markers, whereas other intransitive verbs do not. The question then becomes are adjectives in Mohawk really verbs, a subclass of verbs or something else (Baker, 2003).

In other languages, words such as *white* or *tall* are noun-like in their behavior. One might find affixes, such as articles and markings, for singular and plural placed on these adjectives. In the Australian language, Mayali, one finds:

Kandiwo mankeyeng!
You/me-give long
'Give me the long one!' (Literally, give me long!')

(Baker, 2001)

Dryer (2005a) makes the familiar observation that some languages do not have a distinct word class for adjectives. Like other authors, he points out that adjectival notions are likely to be found in verbs and nouns of these languages. For example, in Ojibwa, words that express adjectival meaning behave like verbs morphologically and syntactically. Consider 1a. and b. below.

1. a. n-ginooz
1SG-tall
'I am tall'

b. n-nagam
1SG-sing
'I am singing'

(Dryer, 2005)

The predicate in 1a. inflects for the first person singular subject in the same manner as the verb meaning 'sing' does in 1b. These two words inflect similarly when they are used to modify a noun as in 2a and b.

2a. nini e-gnoozi-d
man REL-tall-3SG
'a tall man'

b. nini e-ngamo-d
man REL-sing-3SG
'a man who is singing'

(Dryer, 2005)

Dryer defines an adjective primarily on a semantic basis. Accordingly, an adjective is a word "…denoting a descriptive property, with meanings such as *big*, *good*, or *red* (p.354). Additionally, it must be modifying a noun. Thus, a sentence in which a noun is the subject and the adjective is functioning as the predicate would not constitute an adjective modifying a noun as in example (1a) above. According to Dryer (2005d), identifying the specific word class that an adjective occupies has no bearing on the outcome of word order.

Otheguy and Stern (2000) demonstrate that assumptions about the noun and adjective distinctions in Spanish fail on lexical, syntactic, and semantic grounds. Looking only at one of the syntactic arguments put forth is quite instructive. They offer the following:

a. muy mujer, más niño, demasiado hombre
   lit.: "very woman, more child, too man"
b. muy alto, más alto, damaiado alto
   'very tall, taller, too tall"

(p. 129)

In this language the syntactic co-occurrence of nouns with adverbial intensifiers normally reserved for "adjectives" is grammatically acceptable. One of the main points of their article is to redirect the reader and linguist to the fact that assuming a word class exists does not ensure its presence.

Difficulty in distinguishing between a noun and an adjective has also been noted by Adlaar and Muysken (2004). They offer an example from Ayachucho Quechua *rumi wasi* 'stone house' in which *rumi* can be perceived as a noun 'stone' or as an adjective 'made of stone.' For them the crucial difference is that a noun can function by itself e.g., as a subject in a sentence. In contrast real adjectives require "…an element that qualifies their status as

an independent item" (p.208). For example, the element, *ka-q* '(the one) that is' is used in such a manner e.g., *hatun ka-q* 'the big one.'

Dryer (1988) believes that the term *adjective* in word order studies may be potentially misleading. He recommends using the term *property* thereby communicating that adjective is a semantic category and not a grammatical category. Croft (1991) and Taylor (1995; 1998) suggest that the ability to modify a noun is perhaps the most prototypical property of adjectives. This view is operative in some of the descriptive grammars analyzed in this dissertation. For example, Smeets (1989) on Mapuche, Feldman (1986) on Awtuw, Daley (1985) on Tzutujul, Wilson (1980) on Abelam, and Irwin (1974) on Salt-Yui cite the category adjective because of the attributive construction in which adjectives directly modify nouns**.**

Newmeyer (1998) and Baker (2003) do not subscribe to the prototypicality of the modifier position. Newmeyer insists that there is too much ambiguity in the way this concept is posed by various authors, thus making it virtually impossible to test the validity of prototypicality hypothesis. Baker adds that too many adjectives are not able to fulfill the noun modifier role and thus a theory built on this premise is inherently flawed.

Baker's (2003) position is that adjectives are indeed a major lexical class but basically by default. They are not nouns as they do not have referential index and they are not verbs because they do not have a specifier and do not license arguments. Thus, by default an adjective is the only other major category that a word can fall into. What is noteworthy is that Baker (2003) applies formalist syntax to a number of languages including those that are claimed not to have adjectives. His conclusion is that the adjective is a valid word class category that is found in all languages. This is an example where typology with its strong functionalist roots has influenced the formalist tradition into being much more concerned with applying theory on a wider cross-linguistic basis than had previously been done.

Dixon (2005), in reviewing the topic from a typological perspective, comes to the following conclusions: First, there is indeed a word class Adjective. Second, the prototypical adjectives semantic types -Age, Dimension, Value and Color- are likely to be associated with these words. Third, languages rely on different constructions for adjectives to operate. The adjective may only function as an intransitive predicate, or it may only be found as a copula complement. It may only be found as a modifier NP construction. Finally, it may be some combination of the three. English is an example of a language in which all three options are in use. Zuni would

be an example in which intransitive predicates are the sole constructions where adjectives would be found.

In short, adjectives are a subject that has garnered a great deal of attention and generated its share of controversy. While as the above discussion shows, adjectives are not easily defined and all issues have not been resolved, there is a growing consensus that adjectives are a legitimate word class category (Hajek, 2005).

5.4 Criterion Chosen for this Dissertation

Based on the previous treatment of typologists to utilize the modifier function, my initial thought was to use this criterion for assessing the presence of an adjective. My reasoning was as follows: First, the survey in this study is a typological survey. It seemed reasonable to choose a similar tack as those who have done similar studies in the field of typology. Second, since there are at present several databases that rely on these techniques to evaluate their sample languages, the modifier criterion allowed me access to their information without worry of inconsistent application. Finally, I was encouraged by Dryer's (2006) preliminary results, which indicate that word class categorization has no bearing on the results in terms of adjectival placement in relation to the noun.

While it was comforting to note Dryer's preliminary data, the vexing problem of the modifier criterion remained unsatisfactory. Even though there is widespread agreement on the presence of an adjective class, how to identify that class can be challenging. Dixon and Aikhenvald (2005) offer considerable evidence demonstrating that though a semantic criterion is necessary, there are other clues and indices such as morphological, and syntactic factors that can be employed to identify adjectives.

For example, in Ineseño there are two clues that can be used to separate out the adjective from stative verbs. In Ineseño, stative verbs that use the "what form" are considered adjectival.

Sentence:	ʼoʼwow	ha huču
	ʻdog	is white'
	The dog is white	
"What" form:	huču ha-alʼoʼwow > **ma huču** ha-alʼoʼwow	
	or maʼloʼwow **a huču**	
	ʻa white dog'	

(Applegate, 2005 lesson 8)

Moreover, Ineseño is consistently described in the literature as a VOS language (Hawkins, 1983; Tomlin, 1986), yet as one can see in the "adjectival" construction the verb can be found on either side (in bold) adding further support for the notion of an adjective.

Intensification can be utilized to identify adjectives. In some languages, intensification is uniquely applied only to adjectives; in other cases, intensification has a specific meaning applicable only to adjectives (Hajek, 2005). For example, in Yir-Yoront, an Australian language, the intensifier *morr* when used with a noun has the meaning 'real' or 'actual,' whereas when used with an adjective it means 'very.'

There are many other criteria that are often used. Comparative constructions, unique or uniquely applied affixation, reduplication, relativizer markers, and the types and number of genders/classes that an adjective can have are just a few of the kinds of criteria that are being employed to decipher the adjective class. Thus, this dissertation takes the position that adjectives will be identified by as full a scope of available data as reasonably possible.

In order to assure more precision and greater satisfaction with the results, the semantic component was augmented with syntactic, and morphological indicators as well as other linguistic observations. When one looks at Appendix I, one will note that in most cases more than one reference is cited. This had the value of cross-checking observations made by one author with another. In the Methodology section there is also a discussion of when authors disagree, what type of decision-making

heuristic was at work. The overall effect is that a broader approach was used in the collection of data on adjective noun WO for this dissertation.

6. Demonstratives

Demonstratives can be divided into two types: pronominal demonstratives and adnominal demonstratives. Pronominals demonstratives are deictics that substitute for a noun or noun phrase (Diessel, 2005). As in English,

He gave me **this**.

Adnominal demonstratives are co-referenced with a noun or noun phrase (Diessel 2005). As in English,

He gave me **that** book.

It is adnominal demonstratives that are the subject of the present inquiry. Adnominal demonstratives, by and large, have not created anywhere near the controversy of adjectives in linguistic theory. Nonetheless, there are some comments that need to be made.

All indications are that every language has demonstratives. While there are languages in which ascertaining the ordering of demonstratives and nouns is difficult or at times impossible, there is rarely a grammar among the ones studied that fails to mention demonstrative pronouns. If one looks a little closer at the definition of demonstratives, there are some problems. Trask (1999) defines a demonstrative as "…a determiner with a clear deictic function" (p. 80). This definition can be a problem because in other languages the determiner and demonstrative can be separate items syntactically, morphologically, and semantically (Dryer, 2005b). For example,

Kana (Ikoro 1996: 70 cited in Dryer, 2005b)

ló bárí āmā

Def fish this

(Dryer, 2005b)

In general, demonstratives all depend on spatial coordinates centered on the speaker for their interpretation. In some languages demonstratives are inflectionally attached to the nouns and/or verbs and all such forms must be interpreted with respect to the location of the speaker. Most often three relative distances are differentiated by demonstratives corresponding to near,

close by and distant. Spanish would be an example of this as well as having a gender and plural distinction.

este (m)	esta (f)	esto (N)	‘near’
estos (m, pl)	estas (f, pl)		
ese (m)	esa (f)	eso (N)	‘middle’
eses (m, pl)	esas (f, pl)		
aquel (m)	aquella (f)	aquello (N)	‘far’
aquellos (m, pl)	aquellas (f, pl)		

(Sinclair, 2001 p. 212)

Some languages do distinguish more than three. At times the hearer is being brought in as “a second orientation center” (Shetter, 2002). Consider the Native American language Quileute:

NEAR S NEAR H NEAR S+H AWAY FROM S+H

A few languages include choosing between uphill / downhill orientation in their adnominal demonstrative system. Hua, a New Guinean language is an example of this. Shetter (2002) believes that for the thousands of years that language was evolving, humans survived by using language to orient to their physical surroundings. Boas (1911) has described the

demonstrative system of Eskimo as the most “exuberant ” partially due to its orientation to its environment. In Ruhlen’s (2006) global database the Naukan language of the Eskimo-Aleut family has a complex demonstrative system with 20 different deictics. A characterization of the Naukan is presented below:

Demonstratives: 20: (1) this close, (2) that in front, (3) this nearby, (4) that in the water, (5) that behind above, (6) that below, (7) that above, (8) that invisible, (9) that outside, (10) that outside close by, (11) that inside, (12) that invisible far away, (13) that behind not far, (14) that unknown, (15) that way above, (16) that on the mountain, (17) that far away, (18) that going past, (19) that drawing near, (20) that to the side

CHAPTER 2: METHODOLOGY

1. The Sample

This study's corpus consists of the same languages as in Nichols (1992). The sample languages and sources are listed in Appendix I. For each language, a coding was provided for each of the three PWO features under analysis (the order of adjectives and nouns, demonstratives and nouns, and intensifiers and nouns). Each PWO feature is coded for whether the dominant order is prenominal, non-dominant or post-nominal (see detail below). The statistical data collected and organized can be found in Appendix II. For some languages, PWO information is available only from statements in grammar books and other sources. For others, samples of the PWO features under study are available. For these, relevant examples are provided in Appendix III.

1.1 Technical Description of the Sample

The database is a sampling of the world's language families, as well as a sampling of the world's areas. Nichols established evidence for the adequacy of this database by demonstrating through three stages that the findings were consistent at each stage:

1) when approximately 100 languages had been sampled with a disproportionate amount from Eurasia and North America;
2) when 137 languages had been sampled with Africa under-represented and South and Southeast Asia, New Guinea, and South America excluded;
3) and when the present 174 languages had been sampled, the findings of her study were consistent with each other at each stage.

In addition to the 174 languages sampled, two languages, Beja and Ossetic, were added for one of the five statistical procedures used in Nichols' study, the measures of central tendency. Nichols did this in order to have adequate and equivalent representation when measuring genetic vs. areal stability (to be discussed later).

The design included eight genetic and nine areal groupings. The genetic groupings are at the stock level, uncontroversial in their designation, with at least three members representing family-level branchings. There are eight stocks in this sample: Afroasiatic, Niger-Kordofanian, Uto-Aztecan, an extended Penutian, Indo-European, Uralic-Yukagir, Pama-Nyungan and Austronesian. The time depth for stocks range from 5000 years to 8000 years.

As change over time is a key issue in the present study, the genetic groups that I worked with are what Nichols calls, "synchronically coexistent languages." In other words, each genetic group is comprised of languages that are in the same age range and roughly the same time period. At the family level this would mean that the languages have a time depth of 2500-4000 years. One can liken the situation of our groups to the older branches of Indo-European e.g., Balto-Slavic or Indo-Iranian in which approximately 4000 years ago the language separated from their parent stock and approximately 2500 years ago split again into the languages of today.

There are nine areal groupings that are similar in size to the genetic groupings: Ethiopia and Kenya, Ancient Near East, Europe, Caucasus, Oceania, Mesoamerica, Southeastern United States, Interior Siberia and North Pacific Coast of Asia. Each areal group shares a similar time span as well as similar points in time with the other languages in their respective group.

1.2 Selection Criteria for Languages

Nichols described her sampling procedure as "bottom-up." This was based on the decision to sample at a controlled time depth with the size of the sample to follow. In other words, Nichols decided first to sample languages

that fit an agreed upon criteria. She needed to have languages that were discrete, had prior established status, and were adequately described in the literature beyond a typological characterization. Among her concerns was that she wanted to have genetic coverage at the family level, as well as areal coverage of the globe. Thus, all major language families, as well as adequately described isolates, were to be included. In terms of areal sampling, for the purpose of this study, continents are treated as somewhat equivalent units and were thus apportioned equal representation. Other examples of this bottom-up approach are Dryer (1989) and Maddieson (1984).

Nichols contrasted the bottom-up sampling procedure with what she termed a "top-down" sampling procedure. This procedure is characterized by a predetermined number of languages to be sampled with the design and subsequent distribution of sampled languages to follow. An example of this would be Bybee (1985). Bybee's decision to sample 50 languages was based on Bell's (1978) calculations of what would be the least number of languages necessary to ensure that only extremely rare languages would be potentially excluded from a sample. In Bybee's sample, no two languages came from the same phyla, cultural or geographical area.

2. Data collection

As indicated above, it was the intent of this dissertation to collect data on the same 174 languages that Nichols had studied. When warranted, the same sources that Nichols relied on were utilized. But there were times when this was neither feasible nor necessary. First of all, Nichols' research questions focused on CWO, Complexity, Alignment and H/D. Her choice of references sometimes made no mention of or did not focus on PWO issues i.e., adjectival, demonstrative and adverbial PWO. Second, the present research study was initiated and completed 14 years after the printing of Nichols' study, and as a consequence a number of languages have had additional analyses performed on them. Third, she acknowledges that she did not do any text analysis. She relied primarily on grammars and databases.

For this dissertation the following resources and sources were utilized:

Online resources:

- Rosetta Project
- Ethnologue
- Summer Institute of Linguistics
- Language specific web sites

Personal communications were conducted with:

- Native speakers who had an academic linguistic background
- Linguists who were identified as experts in a particular language
- Linguists who were doing research on a specific language;
- Linguists who were living in the linguistic community in question.

Compendiums were consulted such as:

- Campbell (1991)
- Lyovin (1997)

In addition, databases were relied upon such as:

- Greenberg (1963)
- Hawkins (1983)
- Haspelmath et. al (2005)
- Ruhlen (2006).

Finally, books, articles, grammars and, unlike Nichols, text analyses were utilized in the quest for an accurate depiction of the languages and questions at hand. Some languages had numerous resources to consider, others were severely limited in terms of choices.

2.1 Decision-making Heuristic

Even with all these resources available, there were times when difficult decisions had to be made. For example, there were occasionally discrepancies between the sources on how linguistic phenomena were accounted for. Overall, there were approximately 23 instances of disagreement over particular language word order issues. Thus, a hierarchy of decision-making emerged. Below is a delineation of the decision-making heuristic. The first item on the list is given greatest weight over those below; the second item is given greatest weight over those below and so forth.

1. Consultation with a trained linguist in his native tongue in which he/she is an acknowledged expert was given preeminence in making particular decisions about the PWO issues in this study.

2. A grammar written by a trained linguist in which the PWO's under study were explicitly described.

3. A grammar written by a trained linguist who has studied a language and written a grammar on that language, but who does not explicitly account for the phenomenon in question. The relevant PWO issues are embedded in the discussion of other questions.

4. Consultation with a trained linguist who lives or has lived with the linguistic population in question.

5. A paper written by a trained linguist that is germane to the language and PWO issue in question.

6. A paper written by a trained linguist that is germane to the language in question, though not necessarily on the PWO issue under consideration.

7. A text analysis by the present author utilizing Mathew Dryer's requirement that there be a 2:1 ratio to qualify for dominance. This means that when doing a text analysis in order to conclude pronominal or post-nominal dominance, or no dominance, at least 66% of the cases analyzed must be found to be either pre or post. If less than 66% are found to be either pre or post then the decision would be *non-dominant*.

8. A database that cites the source for its data.

9. An educational text on a language either in book or online form that describes the specified PWO feature.

10. A survey text on a family of languages that in some manner makes reference to or offers an example of the PWO feature in question.

11. When there was inadequate data, no available attestation or unresolved conflicting data, the result would be "Indeterminate."

2.2 Examples of Specific Coding Decisions

The following are some examples of when and how this decision-making heuristic was employed.

One of the more challenging cases involved Hausa. Ruhlen (2006) describes Hausa as non-dominant in terms of adjective noun word order, while Dryer (1988) describes Hausa as post-nominal in terms of adjectival placement. These two ideas were at odds with a number of other experts including Dryer (2005) who maintains that Hausa is prenominal. I corresponded with Russell Schuh, an acknowledged authority on Hausa. His

view was in agreement with the majority position that Hausa is essentially prenominal. Thus, that is the position I took.

Sandawe was a particularly interesting case. Dryer (2005) notes that Sandawe places the demonstrative after the noun. He further indicates that there is insufficient data to ascertain the word order for intensifiers and adjectives. However, I had contacted Helen Eaton, a British-trained linguist who has been living with the Sandawe for quite some time. Her perceptions are not in agreement with Dryer's. She confidently describes Sandawe as post-nominal in its placement of the demonstrative. Further, she asserts that intensifiers come before the adjective i.e., prenominal. Based on the hierarchy of decision-making established, Eaton's ideas took priority.

A number of cases involved differences of opinion in which a grammar text was the final arbiter. For example, Ruhlen (2006) describes Gbeya as DN word order, whereas Dryer (2005) and Samarin (1966) state that Gbeya is ND word order. As Samarin is the author of a grammar on Gbeya, this is the conclusion I accepted. In another example, Ruhlen's (2006) description of the Abelam language as post-nominal in its placement of the adjective is inconsistent with other observations. The most important is Patricia Wilson's (1980). She explicitly describes a modified noun phrase with the adjective and adjectival phrase preceding the noun. A similar

situation arose with West Kewa in which Ruhlen (2006) takes a minority position. Ruhlen describes West Kewa as non-dominant in its placement of the adjective. My decision to go with the majority position was based primarily on Franklin's (1971) description of West Kewa as being prenominal. Another case involved Ruhlen (2006) assigning Cashinawa the status of prenominal in its placement of adjective. Cromack (1969), who had written specifically and explicitly on Cashinawa, takes the opposite position. Again, I sided with the author of the grammar. In another situation, Dryer (2005) is inconclusive about adjectival word order regarding Pawnee, while Ruhlen (2006) and Parks (1976) claim post-nominal placement. In this case, I accepted the later group's conclusions since it included Parks, who is the author of a grammar on Pawnee.

In his discussion of Salinan, Campbell (1991) states that this language has no adjectives. On the other hand, Dryer (1989) had studied this specific language and presented a paper on his findings. Among his conclusions is that there are indeed adjectives in this language and they are as likely to come before as well as after the noun. In this case I deferred to Dryer.

In another case, Dryer makes no comment about the ordering of the adjectives, demonstratives and intensifiers in the Wintu language. He relied on Pitkin's (1981) text, which provides no insights into these issues. In

addition to consulting with Pitkin's text, I utilized Sheperd's translations (1997), which make explicit comments on modifiers in Wintu. Furthermore, as a result of a text analysis done by me, I was able to identify the relative position of the intensifier and demonstrative in the Wintu language.

Arapesh as well as Hausa (previously discussed) are good examples of how interpretations or ideas can change over time. Dryer (1988) concluded that with respect to the adjective-noun PWO feature Arapesh was AN. However, by 2005 he had come to a different conclusion. These are examples in which additional information sheds new light on conclusions previously reached.

One of the more difficult decisions pertained to Luiseño. I had ample sources available on this language, however there was a divergence of opinion with respect to the order of the adjective and noun. Three sources indicate a non-dominant order. Three indicate a post-nominal account. I decided to accept the post-nominal position because two of the three post-nominal accounts were based on in-depth analysis of the language. Furthermore, one of the in-depth analyses was a recent contribution to the field. In contrast, on the other side of the ledger, two of the sources cited were secondary sources. In this case, I opted for the post-nominal account.

An important lesson learned is how crucial it is to stick to the same dialect when evaluating a language. Fula is a good example of this. Previously, I had studied a dialect of Fula called Pulaar, which places demonstratives before the noun. However, all linguists who have compiled databases describe Fula as post-nominal in terms of demonstrative placement. Since Nichols had cited a specific text, I turned to that reference to see what the findings were. It was, in fact, that the demonstrative did come after the noun in the Adamwa dialect of Fula (Arnott, 1970).

There is also a human error component. Ruhlen, in compiling data on Chumash, had inadvertently cited a text for the Ineseño dialect of Chumash when it was actually a descriptive grammar of the Barbareno dialect of Chumash. This case highlights the importance of checking, rechecking and reconfirming the data in doing a study of this type.

As previously mentioned, there were 23 instances of disagreement. Considering that there were 522 chances for disagreement and that there are numerous instances where more than one source or reference is involved, this disagreement rate seems a reasonable amount to encounter.

3. Coding of data

For 174 languages there are three data points: adjective noun word order, demonstrative noun word order and intensifier adjective word order. Potentially, if data had been collected for each of the word order features there would be 522 points of data (3x 174). For each data point there was an assignment of a score patterned on the three-way split that Nichols had set up in her original survey (see Table 1 below). A detailed explanation on how Nichols made her determinations in regards to scoring Complexity and H/D is provided in Appendix IV.

Table 1. Numerical values of gross types

Value	H/D type	Complexity	Alignment	CWO
1	Head-marking	Low	Stative-active hierarchical	Verb-initial
2	Double/ Split	Medium	Accusative Neutral	Verb-medial
3	Dependent-marking	High	Ergative	Verb-final

modified and adapted from Nichol (1992)

3.1 Coding Scheme for this Study

The coding scheme was as follows:

If the adjective or demonstrative predominantly comes before the noun, or the intensifier predominantly comes before the adjective, that language was assigned a score of "1" for that feature. Thus, you would have:

1-adjective noun WO
1-demonstrative noun WO
1-intensifier adjective WO

If any of the features for a language were found to be non-dominant, then a score of "2" would be assigned for that language for that specific feature. Thus you would have:

2-no dominant order for adjective noun
2-no dominant order for demonstrative noun
2-no dominant order for intensifier and adjective

If any of the features for a language were found to be post-nominal for an adjective or demonstrative or post-adjectival for the intensifier, then a score of "3" would be assigned for that language for that specific feature. Thus, you would have:

3-noun adjective WO
3-noun demonstrative WO
3-adjective intensifier WO

The rationale for this coding scheme was to allow the researcher to compare different variables, all of which had been partitioned in a three-way split. Table 2 below captures how the three-way coding is translated for each feature that Nichols looked at, as well as how PWO (boldfaced) would be assessed.

Table 2. Numerical values of gross types

Value	H/D type	Complexity	Alignment	CLWO	**PWO**
1	Head-marking	Low	Stative-active Hierarchical	Verb-initial	**Pre-nominal**
2	Double/ Split	Medium	Accusative Neutral	Verb-medial	**No dominant order**
3	Dependent-marking	High	Ergative	Verb-final	**Post-nominal**

Therefore, if a language was identified as head marking, low morphological complexity, accusative alignment, verb-final and prenominal PWO, it would be coded 1, 1, 2, 3, 1 respectively.

4. Statistical Procedure

Lisited below are the statistical analyses that were conducted in this study.

1. Frequency of each of the three possible orders for each of the three PWO features

2. Areal distribution of each of the three possible orders for each of the three PWO features

3. Dryer's area-by-area goodness of fit test for each PWO feature

4. Comparison of central tendency for a group of language i.e., stock vs. area for each of the orders for each of the three PWO features

5. The chi-square test for independence in order to determine whether there is a statistical association between the PWO features under study here and the WO features analyzed by Nichols.

6. The chi-square test for goodness of fit

7. Dryer's area-by-area test for significance of divergence

A brief explanation for the selection of these statistical analyses follows.

4.1 Frequency of each PWO Feature, Their Areal Distribution and Dryer's Area-by-area Goodness of Fit Test.

The frequency of each order for each of the PWO features provides some indication of favored and disfavored word order features. In addition, frequency features cross-tabulated with areal distribution enables the researcher to determine any geographical, continental and global trends related to these word order features. Closely related, employing the Dryer (1989) goodness of fit test allowed for evaluating the language sampling of linguistic areas. It enables the researcher to control for "swamping" of data by ensuring that genetic families in one area are not biasing the results in

another area. Thus, it provides a measure of reliability insurance for the results obtained.

4.2 Comparison of Central Tendency for Stock vs. Area for Each PWO Feature

The intent of this statistical technique is to compare the diachronic stability, both genetically and areally, of the language sample. Two measures of central tendency and divergence were used: mean word order for each of the PWO features and the percentage of languages in a group departing from the modal type for each of the PWO features. These measures served as a way of determining whether the genetic or the areal groups were more consistent or diverse in terms of the features in question.

4.3 Chi-Square Analysis Between Each PWO feature and H/D, Alignment and Complexity

The chi-square test for independence was used to evaluate whether there is a relationship between each PWO feature and H/D, Alignment, and Complexity. Results from this test had the potential to establish whether certain language features cluster and whether any are likely to predict the presence of other features. The null hypothesis for each of the PWO features was:

1. H_0: For the general population of languages, adjective noun WO is independent of H/D.
2. H_0: For the general population of languages, adjective noun WO is independent of Alignment.
3. H_0: For the general population of languages, adjective noun WO is independent of Complexity.
4. H_0: For the general population of languages, demonstrative noun WO is independent of H/D.
5. H_0: For the general population of languages, demonstrative noun WO is independent of Alignment.
6. H_0: For the general population of languages, adjective noun WO is independent of Complexity.
7. H_0: For the general population of languages, intensifier adjective WO is independent of H/D.
8. H_0: For the general population of languages, intensifier adjective WO is independent of Alignment.
9. H_0: For the general population of languages, intensifier adjective WO is independent of Complexity.

4.4 Chi-Square Analysis of Areal Distribution of PWO Features

The chi-square test for goodness of fit was used to examine whether the areal frequencies of each of the orders of the PWO features are by chance or are indicative of significant differences within and between areas. The null hypothesis for each of the PWO features was:

1. H_0: For the general population of languages, there is no difference in adjective noun WO between and within areas of the world.
2. H_0: For the general population of languages, there is no difference in demonstrative noun WO between and within areas of the world.
3. H_0: For the general population of languages, there is no difference in intensifier adjective WO between and within areas of the world.

4.5 Dryer Area-by-area Test for Significance of Divergence

The Dryer area-by-area test for significance of divergence was used to evaluate whether the modal divergence between and within areas was a result of chance or due to significant differences between and within areas. The null hypothesis for each of the PWO features was:

1. H_0: For the general population of languages, there is no difference in the divergence patterns of adjective noun WO between and within areas of the world.
2. H_0: For the general population of languages, there is no difference in the divergence patterns of demonstrative noun WO between and within areas of the world.
3. H_0: For the general population of languages, there is no difference in the divergence patterns of intensifier adjective WO between and within areas of the world.

5. Questions to be Answered to Fulfill Typological Marker Criteria

In order for a PWO feature to qualify as a typological marker four questions have to be answered:

1. Does the prevailing order within the PWO feature demonstrate fair or better grammatical stability?

2. Does the prevailing order within the PWO feature demonstrate moderate or better genetic stability?

3. Does the prevailing order within the PWO feature demonstrate fair to moderate areal stability?

4. Does the prevailing order within the PWO feature demonstrate a scale of patterning that is at least continental in size?

An affirmative answer to **all four** questions would mean that the PWO in question qualifies as a typological marker.

CHAPTER 3: RESULTS

1. Frequency Count as the First Step

To answer the question about the potential viability of any of the PWO features serving as typological markers, a frequency distribution was a prerequisite. The frequency data helped the researcher to see any trends for unmarkedness, markedness, universality, and areal patterning. The frequency data also fed into the other statistical analyses that are forthcoming. For example, the frequency distribution was a first and requisite step the researcher used to determine the interaction between the various PWO features. In addition, the ability to evaluate for areal and genetic stability was also directly tied to the frequency distribution outcomes found.

The Dryer Test for goodness of fit allows for identification and confirmation of trends including universality of the PWO feature. Table 3 describes how the test results are interpreted. Essentially, by dividing up the world into six continent or continental-sized areas, a universal is one in which all six continents register the same distribution pattern. When five out of six are identified as having the same distribution pattern, one would

describe that as a strong trend. Four out of six would be termed a modest or slight preference.

Table 3. Distributions required for significance on Dryer Goodness of Fit Test 1989

No. of Areas	Maximum departures possible for goodness of fit at $p \leq 0.05$
12	2
10	1
8	1
6	0
5	0
3	not testable

Modified and adapted from Nichols 1992

2. Adjective Noun WO

2.1 General Comments on Data Collection for Adjective Noun WO

Of the 174 languages surveyed, data input was available for 165 languages. The following factors were involved in the nine cases where data was not obtained. In the majority of them, the data available was so scanty as to be of little or no use. Examples of this were two languages from Southeast Asia, Nahali and Wagali; two from New Guinea, Waris and Yali; and one from Australia, Warndarang. In one case, Chafe (1963), reporting on the grammar of Seneca, an Iroquoian language, insisted that the language has no adjective classes to describe, and no other linguist since that time has hazarded a guess. In the case of Nyigina, an Australian language isolate, the

one available grammar made no explicit comments about modifiers and provided limited texts to evaluate. In another case, it was claimed by Dryer (1992 & 2005a) that Kutenai, a Western North American language isolate, does not have any adjectives, but only internally headed relative clauses. Finally, there was one case where I was unable to secure any information i.e., Wishram, a Chinookan language of North America.

2.2 Frequency of Adjective Noun WO

The frequency of adjective word order is delineated in Table 4. The overall World totals (excluding indeterminates) indicate that a greater percentage of languages of the world (52%) place the adjective or modifying element after the noun, while 39% were prenominal in their placement. Nine percent of languages were found to have no dominant order. Of the 12 areas delineated by Nichols, seven were found to be post-nominal, four were found to be prenominal and one area was evenly split i.e., Southern and Southeast Asia. One could describe this as a modest trend toward placement of the adjective post-nominally. The application of the Dryer (1989) Test shows a much stronger trend on a continental basis with five of six continent sized areas exhibiting a preference for NA WO (see Table 5). The only area not displaying this preference is Eurasia.

Table 4. Noun adjective word order by area

Area	AN	No Dominant Order	NA	ID*
Africa	**4**		**15**	
Ancient Near East	**1**		**4**	
Europe and Caucasus	**7**		**3**	
Northern Eurasia	**11**		**0**	
South & S.E. Asia	**4**		**4**	**2**
Old World total	**27**		**26**	**2**
New Guinea	**7**	**1**	**14**	**2**
Australia	**4**	**3**	**10**	**2**
Oceania	**2**	**1**	**4**	
Pacific total	**13**	**5**	**28**	**4**
Western North America	**15**	**5**	**10**	**2**
Eastern North America	**0**	**1**	**9**	**2**
Mesoamerica	**4**	**2**	**4**	
South America	**5**	**1**	**9**	
New World total	**24**	**9**	**32**	**4**
World Totals	**64 (39%)**	**14 (9%)**	**86 (52%)**	**10**

* Indeterminate (ID): Lack of adequate information at this time or insistence by author that there is no adjective class, and/or lack of information and unlikely to get any additional information or only internally headed relative clause. Note: ID's not included in calculation of percentages.

Table 5. Continental distribution of adjective noun word order feature

	Af	Eur	SE Asia & Oc.	Aus/New Gui	Nam	Sam	Total
AN	**4**	**18**	**6**	**11**	**19**	**5**	**63**
NA	**15**	**3**	**8**	**24**	**22**	**10**	**82**

The Old World totals differ from the World totals by being ever so slightly more prenominal than post-nominal. Of the five areas surveyed in

the Old World, two out of five areas are prenominal and two out of five are post-nominal and, as previously mentioned, one area is evenly split. Africa and the Near East are the most skewed in terms of post-nominal WO. Northern Eurasia is completely the opposite with all languages identified as exhibiting prenominal WO. There were no findings of non-dominant word order in the Old World as it pertained to placement of the adjective in relation to the noun.

Pacific totals were decidedly more post-nominal than prenominal with approximately two out of three languages being identified as post-nominal. In the three areas that comprise the Pacific (Australia, New Guinea and Oceania), these ratios remained constant. Note that five languages were found to exhibit no dominant order. This is in contrast to the Old World findings where all languages were identified as either pre or post-nominal.

New World totals were found to be more post-nominal than prenominal. However, if one looks at the four delineated areas, a different picture emerges. One area, Eastern North America, is nearly 100% post-nominal. The other three areas (Western North America, Mesoamerica and South America) are, to varying degrees, prenominal in terms of adjective noun WO. It should be noted that Mesoamerica is an area with a high proportion (20%) of languages that are non-dominant in the ordering of the

adjective and noun. Western North America is also particularly noteworthy for the high percentage of languages (17%) that are non-dominant. North America as a whole has a much higher percentage of languages that are classified as non-dominant.

3. Demonstrative Noun WO

3.1 General comments on data collection for demonstrative noun WO

Of the 174 languages surveyed, relevant data on demonstrative noun WO was available for 159 languages. In 14 of 15 cases, the primary cause for languages being unclassifiable was due to inadequate or insufficient data sources. There are four from South America, Axininca Campa, Gününa Küne, Jivaro, Hixkaryana; two from Australia, Djingili and Warndarang; two from North America, Gitksan and Lower Umpqua; one from Africa, Dizi; two from Southeast Asia, Nahali and Wagali; one from New Guinea, Yali; one from Eastern North America; and one from Mesoamerica, Tepehua. As heretofore mentioned, there was no available information for the 15th language, Wishram.

3.2 Frequency of Demonstrative Noun WO

The frequency of demonstrative noun word order is delineated in Table 6.

Table 6. Demonstrative noun word order by area

Area	DN	No Dominant Order	ND	ID*
Africa	**6**	**1**	**11**	**1**
Ancient Near East	**1**		**4**	**0**
Europe and Caucasus	**9**		**1**	
Northern Eurasia	**10**			**1**
South & S.E. Asia	**5**		**4**	**1**
Old World total	**31**	**1**	**20**	**3**
New Guinea	**12**	**1**	**10**	**1**
Australia	**13**		**4**	**2**
Oceania	**3**		**4**	
Pacific total	**28**	**1**	**18**	**3**
Western North America	**28**		**1**	**3**
Eastern North America	**6**	**3**	**2**	**1**
Mesoamerica	**6**	**1**	**2**	**1**
South America	**8**	**1**	**3**	**3**
New World total	**48**	**5**	**8**	**8**
World totals	**107 (67%)**	**7 (4%)**	**46 (29%)**	**14**

* Indeterminates (ID): Lack of adequate information at this time or lack of information and unlikely to get any additional information. Note: Note: ID's not included in calculation of percentages.

Table 7. Continental distribution of demonstrative noun feature

	Af	Eura	SE Asia & Oc.	Aus/New Gui	Nam	Sam	Total
DN	**6**	**19**	**8**	**25**	**39**	**9**	**106**
ND	**11**	**1**	**8**	**14**	**5**	**3**	**42**

The overall World totals indicate a decided preference for the demonstrative o precede the noun. One hundred and seven languages (67%) surveyed place the demonstrative before the noun. Forty-six languages (29%) were identified as post-nominal. A little less than 4% of the languages were found to be non-dominant in terms of placement. Of the 12 areas demarcated by Nichols, nine were found to be prenominal with only Africa, the Ancient East and Oceania being post-nominal. Oceania could have been classified differently had one language been classified as prenominal. One could describe this as a very strong trend toward placement of the demonstrative before the noun. The application of the Dryer (1989) test shows a strong trend on a continental basis with four of six continent-sized areas exhibiting a preference for DN WO (see Table 7). Of the two areas not showing a DN preference with the Dryer test, one area, South Eastern Asia and Oceania, has an equal number (8) favoring both pre and post-nominal placement. Overall, Old World totals, Pacific totals and New World totals indicate a preference for prenominal placement of the demonstrative. Of the

five areas located in the Old World, three are found to be prenominal and two are post-nominal. One of the prenominal areas is marginally greater i.e., Southern and South Eastern Asia. Africa and the Near East are the most skewed in terms of post-nominal WO. Two areas, Europe and the Caucasus and Northern Eurasia, are decidedly skewed in the other direction with 19 of 20 cases being prenominal. There is only one non-dominant word order as it pertains to demonstrative noun WO.

Pacific totals were more prenominal than post-nominal with approximately three languages out of five being identified as prenominal. As previously noted, Oceania was minimally post-nominal. New Guinea was not exceptionally prenominal, either. Australia, on the other hand, was overwhelmingly prenominal. Overall, the ratio (3:2) of prenominal word order is essentially equivalent with the Old World totals.

New World totals were found to be strongly prenominal with nearly a 6:1 ratio between pre and post-nominal. Of the four areas in the New World, three areas were extremely prenominal and one area, Eastern North America, is slightly more prenominal than post-nominal. While tallied numbers for the New World constitute approximately 37% of the sample, the non-dominant languages constitute 66% of the total of non-dominant languages identified worldwide.

4. Intensifier Adjective Word Order

4.1 General Comments on Data Collection for Intensifier Adjective WO

Table 8 below provides the frequencies found for intensifier adjective WO. The total number of identified language types is considerably less robust than what has been the norm for adjective noun WO and demonstrative noun WO. This is primarily a function of inadequate information being available for the researcher to make a determination. In the discussion section I will have more to say about this situation.

4.2 Frequency of Intensifier Adjective WO

Of the 99 languages with usable data, 51 (51%) are pre-adjectival in the placement of the intensifier, 44 (44%) are post-adjectival and 4 (4%) are non-dominant in their placement. Of the 12 areas designated by Nichols, six can be described as pre-adjectival, five as post-adjectival and one as equal in pre- and post-adjectival placement of the intensifier. Application of the Dryer Test (see Table 9) yields no decisive trends, as three of the areas are found to be pre-adjectival and three areas are found to be post-adjectival.

Table 8. Adjective intensifier word order by area

Area	IA	No Dominant Order	AI	ID*
Africa	**4**		**9**	**6**
Ancient Near East	**1**		**2**	**2**
Europe and Caucasus	**9**		**0**	**1**
Northern Eurasia	**7**		**1**	**3**
South & S.E. Asia	**3**		**3**	**4**
Old World total	**24**	**0**	**15**	**16**
New Guinea	**1**	**0**	**9**	**14**
Australia	**3**		**3**	**13**
Oceania	**1**	**1**	**4**	**1**
Pacific total	**5**	**1**	**16**	**28**
Western North America	**11**	**1**	**3**	**17**
Eastern North America	**1**	**0**	**5**	**6**
Meso America	**4**	**2**	**1**	**3**
South America	**6**	**0**	**4**	**5**
New World total	**22**	**3**	**13**	**31**
World totals	**51 (52%)**	**4 (4%)**	**44 (44%)**	**75**

* Indeterminates (ID): Lack of adequate information at this time or lack of information and unlikely to get any additional information. Note: ID's not included in calculation of percentages.

Table 9. Continental distribution of intensifier adjective feature

	Af	Eura	SE Asia & Oc.	Aus/New Gui	Nam	Sam	Total
IA	**4**	**16**	**4**	**4**	**16**	**6**	**50**
AI	**9**	**1**	**7**	**12**	**9**	**4**	**42**

Old World totals and New World totals are more similar with comparable ratios of 12:7 pre-adjectival intensifier to post-adjectival

intensifier. The Pacific totals were the reverse with 3:1 ratio in favor of the intensifier following the adjective.

A breakdown of Old World totals reveals that two of five areas are pre-adjectival, two are post-adjectival and one with no difference. There were no areas in which non-dominant placement of the intensifier was identified. Two areas, Europe and Caucasus and Northern Eurasia, were decidedly pre-adjectival. Almost one-third (31%) of the languages sampled from the Old World were labeled "Indeterminate."

In the Pacific Area, slightly more than one-half (56%) of the languages sampled could not be assessed for placement of the intensifier. Of those sampled, two of the three areas, New Guinea and Oceania, could be described as post-adjectival. The third area, Australia, had an equal number of cases of pre- and post-adjectival placement of the intensifier.

The New World had three of four areas being pre-adjectival in the placement of the intensifier. The one area that was strongly opposite was Eastern North America. Approximately 45% of the New World languages sampled could not be categorized as pre- or post-adjectival.

5. Summary of Frequency Data

A survey of the languages in this study indicate that a greater percentage of languages of the world (52%) place the adjective after the noun, while 39% were prenominal in their placement. The application of the Dryer Test to the continental distributions confirmed this strong trend. In addition, it appears that a much larger percentage of languages of the world (67%) place the demonstrative before the noun than after the noun (29%). The Dryer Test was not quite as conclusive in regards to demonstrative noun WO. Of the 99 languages with usable data, 51% are pre-adjectival in the placement of the intensifier, whereas 44% are post-adjectival. In the case of intensifier adjective WO, the Dryer Test was even less conclusive. To recall, these findings with regard to frequency are relevant for the determination of markedness, universality, stability and potential typological markers.

6. Genetic and Areal Stability of Adjective Noun WO

The basic data for this section will be derived from Table 10 below which is an adaptation of the table provided by Nichols (1992) with an additional column inserted for the PWO feature adjective noun (PWOA). The raw range columns for H/D and Complexity are based on the range of

scores prior to compressing the data into a three-way distinction. Standard deviation for H/D and Complexity is based on the raw numbers as well. Standard deviation (SD) for Alignment and CWO is SD of the type frequencies. *Gross No*. refers to whether there is one, two or three types of word order found in a specific stock or area. For example, it was found in the present study that in the Afroasiatic stock there were two out of a possible three types of adjectival placement in relation to the noun. This is registered as a *two* under the gross types column.

Table 10. Genetic vs. areal stability for PWOA

		H/D type			Complexity				Alignment		CWO		PWOA	
STOCKS	No. Lgs.	Raw Range	S.D.	Gross No.	S.D.	Raw Range	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.
Afroasiatic	4	2	.07	2	0.4	2	0.8	1	0.0	1	0.0	2	0.4	2
Nigerkordofanian	6	7	2.4	3	0.7	7	2.2	3	0.6	1	0.0	2	0.5	2
Indo-European	5	5	1.6	2	0.4	5	2.1	2	0.5	2	0.4	3	0.6	2
Uralic-Yukagir	4	1	0.5	2	0.5	3	1.1	2	0.5	1	0.0	2	0.4	1
Pama-Nyungan	6	3	1.4	1	0.0	5	1.6	2	0.5	2	0.4	2	0.4	3
Austronesian	6	8	2.8	3	0.8	2	0.8	1	0.4	3	0.7	2	0.2	2
Uto-Aztecan	4	5	2.3	2	0.5	6	2.4	2	0.4	1	0.0	2	0.5	2
Penutian	5	4	1.3	2	0.4	5	2.1	2	0.5	2	0.4	2	1.0	2
Mean	5.0	4.4	1.6	**2.1**	0.5	4.4	1.6	**1.9**	0.4	**1.6**	0.2	**2.1**	0.5	**2**
AREAS														
Ethiopia & Kenya	6	2	0.7	2	0.4	3	1.2	2	0.5	1	0.0	1	0.6	3
Near East	5	3	1.2	2	0.5	8	2.9	2	0.4	3	0.5	1	0.0	2
Caucasus	5	8	3.0	2	0.8	5	2.1	2	0.5	3	0.7	2	0.4	2
Europe	5	5	1.8	2	0.5	8	2.6	2	0.5	2	0.4	3	0.6	2
Interior Siberia	6	4	1.2	2	0.5	4	1.6	2	0.5	2	0.4	1	0.2	1
N. Asia Coast	5	10	4.5	2	1.0	9	3.3	3	0.7	2	0.4	1	0.2	1
Oceania	7	9	2.7	3	0.6	7	2.0	3	0.5	3	0.6	2	0.4	2
Southeastern U.S.	6	3	1.1	1	0.0	10	3.1	3	0.7	2	0.5	1	0.0	1
Mesoamerica	9	5	2.0	2	0.4	11	2.9	3	0.6	3	0.6	2	0.8	3
Mean	6.0	5.4	2.0	**2.0**	0.5	7.2	2.4	**2.4**	0.5	**2.3**	0.5	**1.6**	0.4	**1.9**
Difference: Areas minus stocks	1	1.1	.04	**-0.1**	0.1	2.8	0.6	**0.6**	0.7	**0.7**	0.2	**-0.6**	-0.1	**0.1**

Adapted from Nichols (1992) with modification p. 165

6.1 The Number of Gross Types in Stocks for Adjective Noun WO

Table 11 shows two metrics: the mean number of gross types for adjective noun placement, as well as the number of stocks that have either one, two or three of the gross types. The mean number of gross types per stock is an indication of how much consistency/diversity there is for the features being compared. A lower number would be indicative of greater consistency and a higher number would be indicative of greater diversity. An *index* is computed by multiplying the mean number of types per stock by the number of stocks having one, two or three types. This index provides further confirmation of the ranking based on mean number of types per stock alone. Thus, the PWOA row indicates that on average there are 2.0 types of adjective noun word order per stock and an index score of 16.

Table 11. Hierarchy of features based on number of gross types per stock

Feature	Mean No. of types per stock	Number of stocks having: 1 type	2 types	3 types	Index
Alignment	1.6	4	3	1	13
Complexity	1.9	2	5	2	15
PWOA	2.0	1	6	1	16
H/D	2.1	1	5	2	17
CWO	2.1	0	7	1	17

Adapted and modified from Nichols (1992)

A hierarchical ranking can be constructed based on the mean number of gross types per stock from least mean number to greatest mean number.

Two features, Alignment and Complexity, are ranked below and two features, H/D and CWO, are ranked above PWOA. Further computation of the product of number of stocks and number of types yields an index of 16 for the adjectival noun placement feature. This is consistent with the mean number of types per stock ranking, as PWOA is again found in the middle.

Based on the ranking and index data, one could set up a hierarchy of genetic stability (see Figure 3). Note that H/D and CWO are together as they both have 2.1 types per stock and an index of 17. One should also note that there are two >'s between Alignment and Complexity to convey greater difference or separation between these two features than between others (1.6 to 1.9).

FIG. 3 HIERARCHY OF GENETIC STABILITY OF STRUCTURAL FEATURES INCLUDING PWOA

Genetically most stable **Genetically least stable**

Alignment > > Complexity > PWOA > CWO
&
H/D

6.2 The Number of Gross Types in Areas for Adjective Noun WO

Using the same metrics, but applying them instead to the nine areas, will provide insight into the relative areal stability. In other words, the mean number of gross types per area is an indication of the amount of areal

consistency/diversity for the features. A lower number would be indicative of greater consistency and a higher number would be indicative of greater diversity. Now PWO for adjective noun placement is ranked above CWO, but below H/D, Alignment and Complexity respectively. The index of number (see Table 12) of stocks having each type is also consistent in its ranking with the mean number.

Table 12. Hierarchy of features based on number of gross types per area

Feature	Mean no. of types per area	No. of stocks having 1 type	2 types	3 types	Index
CLWO	1.6	4	3	2	16
PWOA	1.9	3	4	2	17
H/D type	2.0	1	7	1	18
Alignment	2.3	1	4	4	21
Complexity	2.4	0	5	4	23

This data can now be translated into a hierarchy of areal stability as seen in Figure 4.

FIG. 4 HIERARCHY OF AREAL STABILITY OF STRUCTURAL FEATURES INCLUDING PWOA

Most areal **Least areal**

CWO >> PWOA > H/D > > Alignment > Complexity

6.3 Differences between Stocks and Areas for Adjective Noun WO

Looking at the difference row in Table 10 will offer us the opportunity to more directly compare families and areas. The higher and more positive the number indicates greater genetic stability, while a lower positive number and greater negative number indicates greater areal stability. Figure 5 captures these differences and the hierarchy that emerges.

FIG. 5 HIERARCHY BASED ON DIFFERENCE BETWEEN STOCKS AND AREAS INCLUDING PWOA

Most genetic **Most areal**

Alignment > Complexity > > PWOA > H/D > CWO

6.4 Conformity to Modal of Adjective Noun WO in Stocks

Table 13 below is an adaptation of a table used by Nichols with an additional column inserted to account for PWO for nouns modified by adjectives (PWOA). This table shows the modal types, i.e., the most frequent, whether by a majority or plurality of languages within a group, for the five features. The numbers in the PWOA modal type column reflect the scoring code used in this study with a *1* indicating pronominal; a *2* as non-dominant; and a *3* as post-nominal. In addition, there is a departures number and percentage column that details the number of languages that depart from

the mode and the percentage of languages that do not conform to that modal type in the group.

The Mean row for each kind of group shows the average number of departures, as well as the average percentage of departures from the mode for each of the features. A higher number in the departure column is indicative of less genetic stability. The reasoning behind this interpretation is that languages from the same stock are more likely to share similar features. Thus, when there is a departure from the mode it signifies that the language is no longer maintaining the defining aspect of the stock. Ranking these numbers for stocks yields the following hierarchy for genetic stability.

FIG. 6 HIERARCHY OF GENETIC STABILITY OF STOCKS BASED ON DEPARTURES INCLUDING PWOA

Genetically most stable **Genetically least stable**

Alignment > PWOA > H/D > Complexity
CWO

Table 13. Conformity to majority type with groups including adjective noun word order

	H/D type			Complexity			Alignment			CWO			PWOA		
STOCKS	No. Lgs.	Mod. type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod. type	Dep. No.	%
Afroasiatic	4	D	1	25	H	0	0	A	0	0	3	1	25	*	*	*
Nigerkordofanian	6	D	3	50	M	2	33	A	0	0	2	2	33	3	1	17
Indo-European	5	D	1	20	H	2	40	A	1	20	2	2	40	1	1	20
Uralic-Yukagir	4	*		*	*		*	A	0	0	3	1	25	1	0	0
Pama-Nyungan	6	D	0	0	M	2	33	E	1	17	3	1	17	3	2	34
Austronesian	6	*		*	M	0	0	A	3	50	1	1	17	3	1	17
Uto-Aztecan	4	*		*	M	1	25	A	0	0	1	1	25	1	1	25
Penutian	5	D	1	20	M	2	40	A	1	20	*	*	*	1	1	20
Total "*"		3			1			0			1			1		
Mean	5		**1.2**	23		**1.3**	24		**0.8**	13		**1.3**	26		**1**	19
AREAS																
Ethiopia & Kenya	6	D	1	17	*		*	A	0	0	3	0	0	3	2	33
Near East	5	2	2	40	H	1	20	*		*	3	0	0	3	1	20
Caucasus	5	D	2	40	H	2	40	*		*	3	1	20	1	1	20
Europe	5	2	2	40	H	2	40	A	1	20	2	2	40	1	2	40
Interior Siberia	6	*		*	*		*	A	1	17	3	0	0	1	0	0
N. Asia Coast	5	D	2	40	*		*	A	1	20	3	0	0	1	0	0
Oceania	7	2	3	43	M	2	29	A	3	43	1	1	14	3	3	43
Southeastern U.S.	6	H	0	0	L	3	50	*		*	3	0	0	3	0	0
Mesoamerica	9	H	2	22	M	4	44	A	4	44	1	3	33	*		*
Total "*"		1			3			3			0			1		
Mean	6.0		**1.8**	30		**2.3**	37		**1.7**	24		**0.8**	12		**1.1**	19.5
Difference: Areas minus Stocks																
Total "*"		-2			2			3			-1			0		
Mean	1		**0.6**	7		**1.0**	13		**0.9**	11		**-0.5**	-14		**0.1**	0.5

* no mode

Adapted from Nichols (1992) with modification p. 171

6.5 Conformity to Modal of Adjective Noun WO in Areas

The lower half of Table 13 summarizes the nine areas in relation to the same five features. A hierarchy based on the average number of departures from the modal types emerges that is now reflective of areal stability.

FIG. 7 HIERARCHY OF AREAL STABILITY BASED ON AVERAGE NUMBER OF DEPARTURES INCLUDING PWOA

Most Areal **Least Areal**

CWO > PWOA > >Alignment > H/D > >Complexity

6.6 Difference Between Modal of Stocks and Areas for Adjective Noun WO

At the bottom of Table 13 is a mean row that is based on the subtracting of the stocks means from the areas means. A higher positive number is indicative of a feature that is more familial than areal. The reason for this is that less diversity in a feature among the stocks than among the areas would result in a positive number. Conversely, a negative number would be interpreted as a feature being more areal than genetic. This is based on the fact that the stock means are being subtracted from the area means. Thus, a feature that exhibits a great deal of diversity in the stocks and less divergence in the areas would result in a negative number. A hierarchy

based on most genetic to most areal can be established. Figure 8 represents the results.

FIG. 8 HIERARCHY BASED ON DIFFERENCE BETWEEN MODAL OF STOCKS AND AREAS INCLUDING PWOA

Most genetic **Most Areal**

Complexity > Alignment > > H/D > > PWOA > > CWO

6.7 Summary of Genetic vs. Areal Stability for Adjective Noun WO

For ease of viewing and understanding, I have copied and combined the previous six figures that relate to stability, three from the gross number of types and three from the number of departures discussion (see figure 9 below). In addition, I have rotated the areal stability figures so that they align with genetic stability. In other words, the *most genetically stable* now parallels the *least areally stable*. Thus, one has a visual summary as well as a means to rank the findings with greater ease.

CWO is consistently the least genetically stable and the most areally stable. Alignment and Complexity are consistently found to be the most genetically stable or least areal ranking, either first or second in four of the six hierarchies. H/D is invariably found in the middle. PWOA is found most often in the middle, and in four of six cases closest to CWO. A ranking

based on 1 for most genetically stable or least areal and 5 for least genetically stable or most areal can be seen on the page following Figure 9. Based on the combined results, Alignment and Complexity are the most genetically stable followed by H/D, PWOA and CWO respectively. This ranking suggests that Alignment and Complexity have strong genetic stability while H/D and PWOA have moderate stability and CWO has the least genetic stablility with respect to the ordering of the adjective and the noun. Furthermore, it appears that CWO is most susceptible to areal spread followed by PWOA and H/D.

FIG. 9 VISUAL SUMMARY OF RELATIVE STABILITY FOR ADJECTIVE NOUN WORD ORDER

Genetically most stable (gross no.) **Genetically least stable**

Alignment > > Complexity > PWOA > CWO
&
H/D

Least areal (gross no.) **Most areal**

Complexity > Alignment > > H/D > PWOA > > CWO

Most genetic (gross no.) **Most areal**

Alignment > Complexity > > PWOA > H/D > CWO

Genetically most stable (departures) **Genetically least stable**

Alignment > PWOA > H/D > Complexity
CWO

Least areal (departures) **Most areal**

Complexity > >H/D > Alignment > > PWOA > CWO

Most genetic (departures) **Most areal**

Complexity > Alignment > > H/D > > PWOA > > CWO

Rankings based on Figure 9

Alignment	10
Complexity	11.5
H/D marking	19.5
PWOA	20
CWO	29

7. Genetic and Areal Stability of Demonstrative Noun WO

The data for this section will be derived from Table 14 below which is an adaptation of the table Nichols (1992) provided with an additional column inserted for the PWO feature demonstrative noun (PWOD). All other columns and rows have been described previously (see section 6 of this chapter).

7.1 The Number of Gross Types in Stocks for Demonstrative Noun WO

PWOD is equal with alignment in terms of having the least mean number of types per stock (see Table 15). This ranking is also consistent with the index, which is computed by multiplying the mean number of types per stock by the number of stocks having one, two or three types. Note that both CWO and H/D have the highest mean number with each having 2.1 types per stock.

Table 14. Hierarchy of features based on number of gross types per stock

Feature	Mean no. of types per stock	No. of stocks having 1 type	2 types	3 types	Index
Alignment	1.6	4	3	1	13
PWOD	1.6	4	3	1	13
Complexity	1.9	2	5	2	15
H/D type	2.1	1	5	2	17
CWO	2.1	0	7	1	17

Table 15. Genetic vs. areal stability including demonstrative noun word order

		H/D type			Complexity				Alignment		CWO		PWOD	
STOCKS	No. Lgs.	Raw Range	S.D.	Gross No.	S.D.	Raw Range	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.
Afroasiatic	4	2	.07	2	0.4	2	0.8	1	0.0	1	0.0	2	0.4	3
Nigerkordofanian	6	7	2.4	3	0.7	7	2.2	3	0.6	1	0.0	2	0.5	2
Indo-European	5	5	1.6	2	0.4	5	2.1	2	0.5	2	0.4	3	0.6	1
Uralic-Yukagir	4	1	0.5	2	0.5	3	1.1	2	0.5	1	0.0	2	0.4	1
Pama-Nyungan	6	3	1.4	1	0.0	5	1.6	2	0.5	2	0.4	2	0.4	2
Austronesian	6	8	2.8	3	0.8	2	0.8	1	0.4	3	0.7	2	0.2	2
Uto-Aztecan	4	5	2.3	2	0.5	6	2.4	2	0.4	1	0.0	2	0.5	1
Penutian	5	4	1.3	2	0.4	5	2.1	2	0.5	2	0.4	2	1.0	1
Mean	5.0	4.4	1.6	**2.1**	0.5	4.4	1.6	**1.9**	0.4	**1.6**	0.2	**2.1**	0.5	**1.6**
AREAS														
Ethiopia & Kenya	6	2	0.7	2	0.4	3	1.2	2	0.5	1	0.0	1	0.6	3
Near East	5	3	1.2	2	0.5	8	2.9	2	0.4	3	0.5	1	0.0	2
Caucasus	5	8	3.0	2	0.8	5	2.1	2	0.5	3	0.7	2	0.4	1
Europe	5	5	1.8	2	0.5	8	2.6	2	0.5	2	0.4	3	0.6	2
Interior Siberia	6	4	1.2	2	0.5	4	1.6	2	0.5	2	0.4	1	0.2	1
N. Asia Coast	5	10	4.5	2	1.0	9	3.3	3	0.7	2	0.4	1	0.2	1
Oceania	7	9	2.7	3	0.6	7	2.0	3	0.5	3	0.6	2	0.4	2
Southeastern U.S.	6	3	1.1	1	0.0	10	3.1	3	0.7	2	0.5	1	0.0	3
Mesoamerica	9	5	2.0	2	0.4	11	2.9	3	0.6	3	0.6	2	0.8	3
Mean	6.0	5.4	2.0	**2.0**	0.5	7.2	2.4	**2.4**	0.5	**2.3**	0.5	**1.6**	0.4	**2**
Difference: Areas minus stocks	1	1.1	.04	**-0.1**	0.1	2.8	0.6	**0.6**	0.7	**0.7**	0.2	**-0.6**	-0.1	**0.4**

Adapted from Nichols (1992) with modification p. 165

Figure 10 is a representation of genetic stability based on the mean number of types per stock and number of stocks having one, two or three types.

FIG. 10 HIERARCHY OF GENETIC STABILITY FOR STRUCTURAL FEATURES INCLUDING PWOD

Alignment > > Complexity > HD
PWOD CWO

7.2 The Number of Gross Types in Areas for Demonstrative Noun WO

The same metrics are applied to the nine areas with slightly different results unfolding. In Table 16 below, PWOD is equal with H/D for the second least mean number of types per stock. Utilizing the index for number of stocks having one, two or three types of stocks yields the same number, 18. However, note that while PWOD has the same number (3) of areas having one, two or three gross types, H/D has one area with one gross type, seven with two gross types and one with three gross types. Based on the data collected, a hierarchy of areal stability can be set up (see Figure 11).

Table16. Hierarchy of features based on number of gross types per area

Feature	Mean no. of types per area	No. of stocks having 1 type	2 types	3 types	Index
CLWO	1.6	4	3	2	16
PWOD	2.0	3	3	3	18
H/D type	2.0	1	7	1	18
Alignment	2.3	1	4	4	21
Complexity	2.4	0	5	4	23

FIG. 11 HIERARCHY OF AREAL STABILITY OF STRUCTURAL FEATURES INCLUDING PWOD

Most areal **Least areal**

CWO > > H/D > >Alignment > Complexity
PWOD

7.3 Differences between Means of Stocks and Areas for Demonstrative Noun WO

Looking at the difference row in Table 14 offers the opportunity to compare families and areas more directly. The higher and more positive number indicates greater genetic stability, while a lower positive number and conversely higher negative number indicates greater areal stability. Figure 12 depicts these differences and the hierarchy that emerges.

FIG. 12 HIERARCHY OF STABILITY BASED ON DIFFERENCE BETWEEN STOCKS AND FAMILIES INCLUDING PWOD

Most genetic **Most areal**

Alignment >Complexity > PWOD > >H/D >CWO

7.4 Conformity to Modal of Demonstrative Noun WO in Stocks

Table 17 below is a modification of a table devised by Nichols (1992) with PWOD data inserted in the appropriate column. The same principle applies in that the lower the mean number of departures from the mode the greater the genetic stability. Alignment can be identified as the most genetically stable followed closely by PWOD. CWO and Complexity can be identified as the least genetically stable. Figure 13 offers a representation of the ranking.

FIG. 13 HIERARCHY OF GENETIC STABILITY OF STRUCTURAL FEATURES BASED ON AVERAGE NUMBER OF DEPARTURES INCLUDING PWOD

Genetically most stable **Genetically least stable**

Alignment >> PWOD > H/D > CLWO
Complexity

Table 17. Conforming to majority types within groups including demonstrative noun word order

		H/D type			Complexity			Alignment			CWO			PWOD			
STOCKS	No. Lgs.	Mod. Type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod. Type	Dep. No.	%	
Afroasiatic	4	D	1	25	H	0	0	A	0	0	3	1	25	*	*	*	
Nigerkordofanian	6	D	3	50	M	2	33	A	0	0	2	2	33	3	1	17	
Indo-European	5	D	1	20	H	2	40	A	1	20	2	2	40	1	0	0	
Uralic-Yukagir	4	*		*	*		*	A	0	0	3	1	25	1	0	0	
Pama-Nyungan	6	D	0	0	M	2	33	E	1	17	3	1	17	1	2	33	
Austronesian	6	*		*	M	0	0	A	3	50	1	1	17	3	2	33	
Uto-Aztecan	4	*		*	M	1	25	A	0	0	1	1	25	1	0	0	
Penutian	5	D	1	20	M	2	40	A	1	20	*	*	*	1	0	0	
Total "*"		3			1			0			1			1			
Mean	5		**1.2**	23		**1.3**	24		**0.8**	13		**1.3**	26		**0.7**	10	
AREAS																	
Ethiopia & Kenya	6	D	1	17	*		*	A	0	0	3	0	0	3	2	40	
Near East	5	2	2	40	H	1	20	*		*	3	0	0	3	1	20	
Caucasus	5	D	2	40	H	2	40	*		*	3	1	20	1	0	0	
Europe	5	2	2	40	H	2	40	A	1	20	2	2	40	1	1	20	
Interior Siberia	6	*		*	*		*	A	1	17	3	0	0	1	0	0	
N. Asia Coast	5	D	2	40	*		*	A	1	20	3	0	0	1	0	0	
Oceania	7	2	3	43	M	2	29	A	3	43	1	1	14	3	3	43	
Southeastern U.S.	6	H	0	0	L	3	50	*		*	3	0	0	1	2	40	
Mesoamerica	9	H	2	22	M	4	44	A	4	44	1	3	33	1	3	33	
Total "*"		1			3			3			0			0			
Mean	6.0		**1.8**	30		**2.3**	37		**1.7**	24		**0.8**	12		**1.3**	27	
Difference: Areas minus Stocks																	
Total "*"		-2			2			3			-1			-1			
Mean	1		**0.6**	7		**1.0**	13		**0.9**	11		**-0.5**	-14		**0.5**	17	

Adapted from Nichols (1992) with modification p.171

7.5 Conformity to Modal of Demonstrative Noun WO in Areas

Turning our attention to the areas section of Table 17 will give us some idea of the areal stability of the five structural features. CWO is found to be most areal and Complexity the least areal with Figure 14 below depicting those results.

FIG. 14 HIERARCHY OF AREAL STABILITY OF STRUCTURAL FEATURES BASED ON AVERAGE DEPARTURES INCLUDING PWOD

Most areal **Least areal**

CLWO > > PWOD > Alignment > H/D > > Complexity

7.6 Difference Between Modal of Stocks and Areas for Demonstrative Noun WO

Subtracting the means of the stocks from the areas offers a way to compare the familial stability with that of the areal stability. Again, a higher number is indicative of a feature that is more familial than areal. A hierarchy based on most genetic to most areal can be established. Figure 15 captures the results.

FIG. 15 HIERARCHY BASED ON DIFFERENCE IN MODAL BETWEEN STOCKS AND AREAS INCLUDING PWOD

Most genetic **Most areal**

Complexity >Alignment > > H/D > > PWOD > > CWO

7.7 Summary of Genetic vs. Areal Stability for Demonstrative Noun WO

For ease of viewing and understanding, the six previous figures that relate to stability, including PWOD, have been copied—three from gross number of types and three from number of departures discussion. In addition, the areal figures have been rotated so that they align with the genetic stability figures. This provides a visual summary, as well as an easier perspective to rank the findings.

CWO is consistently the least genetically stable and the most areally stable. Alignment and Complexity are consistently found to be the most genetically stable ranking, either first or second in five of the six hierarchies. H/D is invariably found in the middle. PWOD is found most often in the middle and in three of six cases closest to CWO. PWOD is also found tied with alignment as highest ranking in one of the scales. A ranking based on the results in Figure 16 in which 1 is assigned for most genetically stable or least areal and 5 for least genetically stable or most areal can be found below. Based on the combined results, Alignment and Complexity are the most genetically stable, followed by PWOD, H/D and CWO respectively. One could conclude from this ranking that Alignment and Complexity have strong

genetic stability; PWOD and H/D have moderate genetic stability; and CWO has weak genetic stability. Furthermore, PWOD, H/D and CWO display moderate to strong areality respectively.

FIG. 16 VISUAL SUMMARY OF RELATIVE STABILITY FOR PWOD

Genetically most stable (gross) **Genetically least stable**

Alignment > > Complexity > H/D
PWOD **CWO**

Least areal (gross) **Most areal**

Complexity > Alignment > > H/D > > CWO
PWOD

Most genetic (gross) **Most areal**

Alignment >Complexity > PWOD > >H/D >CWO

Genetically most stable (departures) **Genetically least stable**

Alignment >> PWOD > H/D > CLWO
Complexity

Least areal (departures) **Most areal**

Complexity > > H/D > Alignment > PWOD > >CWO

Most genetic (departures) **Most areal**

Complexity >Alignment > > H/D > > PWOD > > CWO

Rankings based on Figure 16

Alignment	10.5
Complexity	13.5
PWOD	18
H/D marking	20
CWO	29

8. Genetic and Areal Stability for Intensifier Adjective WO

8.1 The Number of Gross Types in Stocks for Intensifier Adjective WO

Table 18 below is an adaptation from Nichols (1992) with an additional column inserted for the PWO feature intensifier adjective (PWOI). Looking at Table 18, there is a listing of the number of different gross types found in each stock. One will note that under the PWOI column there are instances where *ND* appears. This indicates that sufficient data was unavailable in order to complete that specific column.

Table 19 shows two metrics: the mean number of gross types for intensifier adjective placement, as well as the product of the number of stocks and number of types per stock. The PWOI column indicates that on average there were 1.5 types of intensifier adjective word order per stock. The rate of 1.5 types per stock for PWOI was the lowest followed by Alignment, Complexity, and H/D, and CWO respectively. Note that H/D and CWO were equal in terms of average number of stocks and the index score. The computing of the index of the product of number of stocks and number of types is not an option as there is an inequality in the total number of stocks used for PWOI versus the other four structural features.

Table 18. Genetic vs. areal stability including intensifier adjective word order

			H/D type			Complexity			Alignment			CWO			PWOI
STOCKS	No. Lgs.	Raw Range	S.D.	Gross No.	S.D.	Raw Range	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.	S.D.	Gross No.
Afroasiatic	4	2	.07	2	0.4	2	0.8	1	0.0	1	0.0	2	0.4	2
Nigerkordofanian	6	7	2.4	3	0.7	7	2.2	3	0.6	1	0.0	2	0.5	1
Indo-European	5	5	1.6	2	0.4	5	2.1	2	0.5	2	0.4	3	0.6	1
Uralic-Yukagir	4	1	0.5	2	0.5	3	1.1	2	0.5	1	0.0	2	0.4	1
Pama-Nyungan	6	3	1.4	1	0.0	5	1.6	2	0.5	2	0.4	2	0.4	ND
Austronesian	6	8	2.8	3	0.8	2	0.8	1	0.4	3	0.7	2	0.2	3
Uto-Aztecan	4	5	2.3	2	0.5	6	2.4	2	0.4	1	0.0	2	0.5	1
Penutian	5	4	1.3	2	0.4	5	2.1	2	0.5	2	0.4	2	1.0	ND
Mean	5.0	4.4	1.6	**2.1**	0.5	4.4	1.6	**1.9**	0.4	**1.6**	0.2	**2.1**	0.5	**1.5**
AREAS														
Ethiopia & Kenya	6	2	0.7	2	0.4	3	1.2	2	0.5	1	0.0	1	0.6	2
Near East	5	3	1.2	2	0.5	8	2.9	2	0.4	3	0.5	1	0.0	ND
Caucasus	5	8	3.0	2	0.8	5	2.1	2	0.5	3	0.7	2	0.4	1
Europe	5	5	1.8	2	0.5	8	2.6	2	0.5	2	0.4	3	0.6	1
Interior Siberia	6	4	1.2	2	0.5	4	1.6	2	0.5	2	0.4	1	0.2	1
N. Asia Coast	5	10	4.5	2	1.0	9	3.3	3	0.7	2	0.4	1	0.2	1
Oceania	7	9	2.7	3	0.6	7	2.0	3	0.5	3	0.6	2	0.4	2
Southeastern U.S.	6	3	1.1	1	0.0	10	3.1	3	0.7	2	0.5	1	0.0	1
Mesoamerica	9	5	2.0	2	0.4	11	2.9	3	0.6	3	0.6	2	0.8	3
Mean	6.0	5.4	2.0	**2.0**	0.5	7.2	2.4	**2.4**	0.5	**2.3**	0.5	**1.6**	0.4	**1.5**
Difference: Areas minus stocks	1	1.1	.04	**-0.1**	0.1	2.8	0.6	**0.6**	0.7	**0.7**	0.2	**-0.6**	-0.1	**0**

Adapted from Nichols (1992) with modification p. 165

Table 19. Hierarchy of features based on number of gross types per stock

Feature	Mean No. of types per stock	Number of stocks having: 1	2 types	3	Index
PWOI	1.5	4	1	1	ND
Alignment	1.6	4	3	1	13
Complexity	1.9	2	5	2	15
H/D	2.1	1	5	2	17
CLWO	2.1	0	7	1	17

ND = not determined due to missing data

Based on the ranking alone one could set up a hierarchy of genetic stability (see Figure 17 below).

FIG. 17 HIERARCHY OF GENETIC STABILITY OF STRUCTURAL FEATURES INCLUDING PWOI

Genetically most stable — Genetically least stable

PWOI > Alignment > > Complexity > CWO & H/D

8.2 The Number of Gross Types in Areas for Intensifier Adjective WO

Using the same metrics but applying it instead to the nine areas yields different results (see Table 20). The average of 1.5 for PWOI is the lowest in relation to the other four structural features. Again, with one area not being available for assessment, the index cannot be computed.

Table 20. Hierarchy of features based on number of gross types per area

Feature	Mean no. of types per area	No. of stocks having 1 type	2 types	3 types	Index
PWOI	1.5	5	2	1	ND
CWO	1.6	4	3	2	16
H/D type	2.0	1	7	1	18
Alignment	2.3	1	4	4	21
Complexity	2.4	0	5	4	23

ND = not determined due to missing data

This data can now be translated into a hierarchy of areal stability as seen in Figure 18.

FIG. 18 HIERARCHY OF AREAL STABILITY OF STRUCTURAL FEATURES INCLUDING PWOI

Most areal **Least areal**

PWOI > CWO > > H/D > > Alignment > Complexity

8.3 Difference in Means Between Stocks and Areas for Intensifier Adjective WO

The difference row in Table 18 will offer us the opportunity to more directly compare families and areas. The higher and more positive the number indicates greater genetic stability, while a lower positive number and/or a negative number indicates greater areal stability. Figure 19 reflects these differences and the hierarchy that emerges.

FIG. 19 HIERARCHY OF DIFFERENCE BETWEEN STOCKS AND FAMILIES INCLUDING PWOI

Most genetic **Most areal**

Alignment > Complexity > > PWOI > H/D > > CWO

8.4 Conformity to Modal of Intensifier Adjective WO in Stocks

Table 21 below shows the modal types, i.e., the most frequent, whether by a majority or plurality of languages within a group, for the five features including PWOI. In addition, there is a departures number and percentage column that details the number of languages that depart from the mode and the percentage of languages that do not conform to that modal type in the group.

The Mean row for each kind of group shows the average number of departures, as well as the average percentage of departures from the mode for each feature. A high number is indicative of less relative stability. Ranking these numbers for stocks yields the following hierarchy for genetic stability (see Figure 20).

FIG. 20 HIERARCHY OF GENETIC STABILITY OF STRUCTURAL FEATURES BASED ON AVERAGE NUMBER OF DEPARTURES INCLUDING PWOI

Genetically most stable **Genetically least stable**

PWOI > > Alignment > > H/D > Complexity
&
CWO

Table 21. Conforming to majority types within groups including intensifier adjective word order

		H/D type			Complexity			Alignment			CWO			PWOI			
STOCKS	No. Lgs.	Mod. type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod type	Dep. No.	%	Mod. Type	Dep. No.	%	
Afroasiatic	4	D	1	25	H	0	0	A	0	0	3	1	25	3	1	33	
Nigerkordofanian	6	D	3	50	M	2	33	A	0	0	2	2	33	3	0	17	
Indo-European	5	D	1	20	H	2	40	A	1	20	2	2	40	1	0	20	
Uralic-Yukagir	4	*		*	*		*	A	0	0	3	1	25	1	0	0	
Pama-Nyungan	6	D	0	0	M	2	33	E	1	17	3	1	17	*		*	
Austronesian	6	*		*	M	0	0	A	3	50	1	1	17	3	2	33	
Uto-Aztecan	4	*		*	M	1	25	A	0	0	1	1	25	1	0	0	
Penutian	5	D	1	20	M	2	40	A	1	20	*	*	*	*		*	
Total "*"		3			1			0			1			2			
Mean	5		**1.2**	23		**1.3**	24		**0.8**	13		**1.3**	26		**0.5**	17	
AREAS																	
Ethiopia & Kenya	6	D	1	17	*		*	A	0	0	3	0	0	*		*	
Near East	5	2	2	40	H	1	20	*		*	3	0	0	*		*	
Caucasus	5	D	2	40	H	2	40	*		*	3	1	20	1	0	0	
Europe	5	2	2	40	H	2	40	A	1	20	2	2	40	1	0	0	
Interior Siberia	6	*		*	*		*	A	1	17	3	0	0	1	0	0	
N. Asia Coast	5	D	2	40	*		*	A	1	20	3	0	0	1	1	33	
Oceania	7	2	3	43	M	2	29	A	3	43	1	1	14	3	3	50	
Southeastern U.S.	6	H	0	0	L	3	50	*		*	3	0	0	3	0	0	
Mesoamerica	9	H	2	22	M	4	44	A	4	44	1	3	33	1	4	43	
Total "*"		1			3			3			0			1			
Mean	6.0		**1.8**	30		**2.3**	37		**1.7**	24		**0.8**	12		**1.2**	15	
Difference: Areas minus Stocks																	
Total "*"		-2			2			3			-1			0			
Mean	1		**0.6**	7		**1.0**	13		**0.9**	11		**-0.5**	-14		**0.7**	2	

Adapted from Nichols (1992) with modification p.171

8.5 Conformity to Modal of Intensifier Adjective WO in Areas

Turning our attention to the lower half of Table 21 enables one to evaluate greater or less areal stability for the five features. The lower the average departure number, the greater the areal stability. Figure 21 provides a representation of that hierarchy.

FIG. 21 HIERARCHY OF AREAL STABILITY BASED ON AVERAGE NUMBER OF DEPARTURES INCLUDING PWOI

Most Areal **Least Areal**

CWO > > PWOI > Alignment > H/D > > Complexity

8.6 Difference Between Modal of Stocks and Areas for Intensifier Adjective WO

At the bottom of Table 21 is a mean row that is based on the subtracting of the stocks means from the areas means. A higher number is indicative of a feature that is more familial than areal. Based on these calculations, a hierarchy based on most genetic to most areal can be established. Figure 22 represents the results.

FIG. 22 HIERARCHY OF STABILITY BASED ON DIFFERENCE BETWEEN MODAL OF STOCKS AND AREAS INCLUDING PWOI

Most genetic **Most Areal**

Complexity > > Alignment > PWOI > H/D > CWO

8.7 Summary of Genetic vs. Areal Stability for Intensifier Adjective WO

For ease of viewing and understanding, I have copied and combined the previous six figures that relate to stability, the three from gross number of types and three from number of departure discussion. In addition, the areal figures have been rotated so that they align with the genetic stability.

As one can see, CWO consistently is the least genetically stable and the most areally stable. Alignment and Complexity are consistently found to be the most genetically stable rankings, either first or second in five of the six hierarchies. H/D is invariably found in the middle. PWOI exhibits strong genetic stability and strong areality in four of the six figures and in the other two is found in the middle. A ranking based on 1 for most genetically stable or least areal and 5 for least genetically stable or most areal can be seen in Figure 23 below. Based on the combined results, Alignment and Complexity are the most genetically stable followed by PWOI, H/D and CWO respectively. These rankings suggest that Alignment

and Complexity have a strong genetic stability, PWOI and H/D have moderate stability and CWO is least genetically stable. From an areality perspective, it appears that PWOI is moderately areal.

FIG. 23 VISUAL SUMMARY OF RELATIVE STABILITY FOR PWOI

Genetically most stable (gross no.) **Genetically least stable**

PWOI > Alignment > > Complexity > CWO
&
H/D

Least areal (gross no.) **Most areal**

Complexity > Alignment > > H/D > > CWO > PWOI

Most genetic (gross no.) **Most areal**

Alignment > Complexity > > PWOI > H/D > > CWO

Genetically most stable (departures) **Genetically least stable**

PWOI > > Alignment > > H/D > Complexity
&
CWO

Least areal (departures) **Most areal**

Complexity > > H/D > Alignment > PWOI > > CWO

Most genetic (departures) **Most areal**

Complexity > > Alignment > PWOI > H/D > CWO

Ranking based on Figure 23

Alignment	12
Complexity	12.5
PWOI	17
H/D marking	20.5
CWO	28

9. Is There an Association Between PWO Features and Complexity, Alignment and H/D?

The chi square analysis for independence was conducted in order to determine whether there is a relationship between each of the PWO features and Complexity, Alignment and H/D. A significant relationship would suggest that a PWO feature has the potential of being grammatically stable. To recall, a grammatically stable feature is one that predicts the presence of another feature or clusters with a group of features.

9.1 Significant Correlation found between the WO of Adjectives and Nouns and Complexity

A chi square analysis for independence was conducted between the WO of nouns and adjectives and each of the following features: Complexity, Alignment and H/D. Below are the frequency results and the $\chi 2$ values.

Table 22. Complexity and adjective noun word order

	Word Order		
Complexity	AN	NA	Total
Low	8	24	32
Moderate	35	46	81
High	21	15	36
Total	64	85	149

With a value of 7.687 and 2 df significant at .05 level of confidence

Table 23. Alignment and adjective noun word order

	Word Order		
Alignment	AN	NA	Total
Accusative	46	55	101
Ergative	11	15	26
Stative-Active	6	15	21
Total	63	85	148

With a value of 2.050 and 2 df not significant at .05 level of confidence

Table 24. H/D and adjective noun word order

	Word Order		
H/D	AN	NA	Total
Head Marking	18	30	48
Double or Split	19	27	46
Dependent Marking	27	27	54
Total	64	84	148

With a value of 1.720 and 2 df not significant at .05 level of confidence

A significant result at the .05 confidence level was found for the ordering of the noun and adjective in relation to Complexity. Thus, the below null hypothesis was rejected:

> H_0: For the general population of languages, adjective noun WO is independent of Complexity.

There appears to be a relationship between adjective noun WO and Complexity. Looking at Table 22 above, one can observe that at low

complexity the adjective tends to be post-nominal in its placement. As complexity increases there is a greater likelihood of the adjective being found prenominally, and at high complexity it is much more likely to be found post-nominally.

No significant results were found for the ordering of the noun and adjective in relation to Alignment and H/D. Thus, the following null hypotheses were not rejected.

1. H_0: For the general population of languages, adjective noun WO is independent of Alignment.
2. H_0: For the general population of languages, adjective noun WO is independent of H/D.

In short, no relationship was found between the ordering for adjective and noun with either Alignment or H/D.

9.2 No Correlation found between the WO of Demonstratives and Nouns with Complexity, Alignment and H/D.

A chi-square analysis for independence was conducted between the WO of nouns and demonstratives with each of the following features: Complexity, Alignment and H/D. The frequency results and the $\chi 2$ values follow.

Table 25. Complexity and demonstrative noun word order

	Word Order		
Complexity	DN	ND	Total
Low	20	13	33
Moderate	60	22	82
High	26	10	36
Total	106	45	151

With a value of 1.868 and 2 df not significant at .05 level of confidence

Table 26. Alignment and demonstrative noun word order

	Word Order		
Alignment	DN	ND	Total
Accusative	74	29	103
Ergative	14	12	26
Stative-Active	17	5	22
Total	105	46	151

With a value of 3.902 and 2 df not significant at .05 level of confidence

Table 27. H/D and demonstrative noun word order

	Word Order		
H/D	DN	ND	Total
Head Marking	38	11	49
Double, Split	29	16	45
Dependent Marking	39	17	56
Total	106	44	150

With a value of 1.989 and 2 df not significant at .05 level of confidence

No significant results were found for the ordering of the noun and demonstrative in relation to Complexity, Alignment and H/D. The following null hypotheses were not rejected:

1. H_0: For the general population of languages, demonstrative noun WO is independent of Complexity.
2. H_0: For the general population of languages, demonstrative noun WO is independent of Alignment.
3. H_0: For the general population of languages, demonstrative noun WO is independent of H/D.

Thus, we conclude that there is no relationship between the WO feature of the demonstrative and noun and the individual features of Complexity, Alignment and H/D.

9.3 Significant Correlation found between the WO of Adjectives and Intenifiers and Complexity

A chi square analysis for independence was conducted between the WO of intensifiers and adjectives with each of the following features: Complexity, Alignment and H/D. Below are the frequency results and the $\chi 2$ values.

Table 28. Complexity and intensifier adjective word order

	Word Order		
Complexity	IA	AI	Total
Low	5	13	18
Moderate	31	22	53
High	16	8	24
Total	52	43	95

With a value of 6.960 and 2 df significant at .05 level of confidence

Table 29. Alignment and intensifier adjective word order

	Word Order		
Alignment	IA	AI	Total
Accusative	39	33	72
Ergative	6	5	11
Stative-Active	7	5	12
Total	52	43	95

With a value of 0.720 and 2 df not significant at .05 level of confidence

Table 30. H/D and intensifier adjective word order

	Word Order		
H/D	IA	AI	Total
Head Marking	17	18	35
Double, Split	16	12	28
Dependent Marking	19	12	31
Total	52	42	94

With a value of 1.130 and 2 df not significant at .05 level of confidence

A significant relationship was found between the ordering of the intensifier and adjective in relation to Complexity. The following null hypotheses was rejected:

H_0: For the general population of languages, intensifier adjective WO is independent of Complexity.

A close inspection of Table 29 (above) indicates that as complexity increases there is greater likelihood of the adjective following the noun. For example, at low complexity the intensifier is likely to be found post-adjectivally. As complexity increases, there is an increased likelihood of the intensifier being placed pre-adjectivally. Thus, by moderate complexity there is a 3:2 ratio of placement of the intensifier pre-adjectivally. By high complexity that ratio has increased to a 2:1 ratio in favor of placing the adjective pre-adjectivally.

No significant results were found for the ordering of the adjective and intensifier in relation to Alignment and H/D. Thus, the following null hypotheses were not rejected.

1. H_0: For the general population of languages, intensifier adjective WO is independent of Alignment.
2. H_0: For the general population of languages, intensifier adjective

It appears that there is no relationship between the word order position of the intensifier and adjective in relation to Alignment and H/D.

9.4 Summary of Correlations: Significant Correlations Found in This Set of Analyses

Significant correlations were found in this set of analyses. In two cases, the ordering of adjectives and nouns with Complexity and the ordering of intensifiers and adjectives with Complexity, the values reached significance at the .05 confidence level. Based on these results, one could surmise that the ordering of the adjective and noun and the ordering of the intensifier and adjective is predictive of the level of Complexity.

10. The Role of Geography: What Type of Areal Patterning is Observed?

The chi-square analysis of areal distribution and Dryer Test for divergence were used to evaluate what type of areal patterning the PWO features exhibited. This part of the results section requires familiarity with Table 31 (below), which details distributions required for significance on the Dryer Test for Divergence**.** The reader should note that for this test $P \geq 0.1$. This is due to the limited numbers (number of areas) that are involved in this test.

The way to read Table 31 is, that if there are 12 areas being evaluated, at least four of the areas have to diverge or be different from the modal type. For example, if one were to reflect back to Table 3 (reproduced as Table 32 below), one will see that of the 12 areas, seven were found to be NA, four were found to be AN and one found to be equal in number of pre- and post-adjectives. Thus, at least four of the 12 areas diverge from the modal. This would be considered a significant finding.

Table 31. Distributions required for significance on Dryer Test for divergence 1989

No. of Areas	Minimum departures required divergence at $p \geq 0.10$
12	4
10	3
8	2
6	2
5	2
3	1

Modified from Nichols 1992

Table 32. (Reproduction of Table 3) Noun adjective word order by area

Area	AN	No Dominant Order	NA	ID*
Africa	**4**		**15**	
Ancient Near East	**1**		**4**	
Europe and Caucasus	**7**		**3**	
Northern Eurasia	**11**		**0**	
South & S.E. Asia	**4**		**4**	**2**
Old World total	**27**		**26**	**2**
New Guinea	**7**	**1**	**14**	**2**
Australia	**4**	**3**	**10**	**2**
Oceania	**2**	**1**	**4**	
Pacific total	**13**	**5**	**28**	**4**
Western North America	**15**	**5**	**10**	**2**
Eastern North America	**0**	**1**	**9**	**2**
Mesoamerica	**4**	**3**	**3**	
South America	**5**	**1**	**9**	
New World total	**24**	**10**	**31**	**4**
World Totals	**64 (39%)**	**15 (9%)**	**85 (52%)**	**10**

* Lack of adequate information at this time or insistence by author that there is no adjective class, and/or lack of information and unlikely to get any additional information or only internally headed relative clause.

10.1 Large Scale Patterning of the Ordering of Adjective Noun WO

Table 33 below summarizes the results to be reported in this section. Within the sample as a whole there were significant findings at the 0.01 confidence level on the chi-square test and the Dryer Test for both All Areas and Continents. Within the macroareas there were significant findings:

- at the 0.05 confidence level on the chi-square test and on the Dryer test for the Old World;

- at the 0.01 confidence level on the chi-square test and on the Dryer test for the New World;
- and at the 0.05 confidence level on the chi-square test and on the Dryer test for the New World and Pacific.

The only significant finding between macroareas was the result of the Dryer test for Old World vs. Pacific vs. New World. No other area or permutation of areas was found to be significant by either test.

Table 33. Levels of significance for word order of adjective and nouns within and between areas

	Levels of significance	
	χ2	**Dryer**
Differences within the sample as a whole		
All Areas	<0.01	S
Continents only	<0.01	S
Within macroareas		
Old World	<0.01	S
Pacific	n.s.	n.s.
New World	<0.01	S
New World & Pacific	<0.05	S
Between macroareas		
Old World vs. Pacific vs. New World	n.s.	S
Old World vs. others	n.s.	n.t.
Pacific vs. others	n.s.	n.t.
New World vs. others	n.s.	n.t.
Old World vs. Pacific	n.s.	n.t.
Pacific vs. New World	n.s.	n.t.
Old World vs. New World	n.s.	n.t.

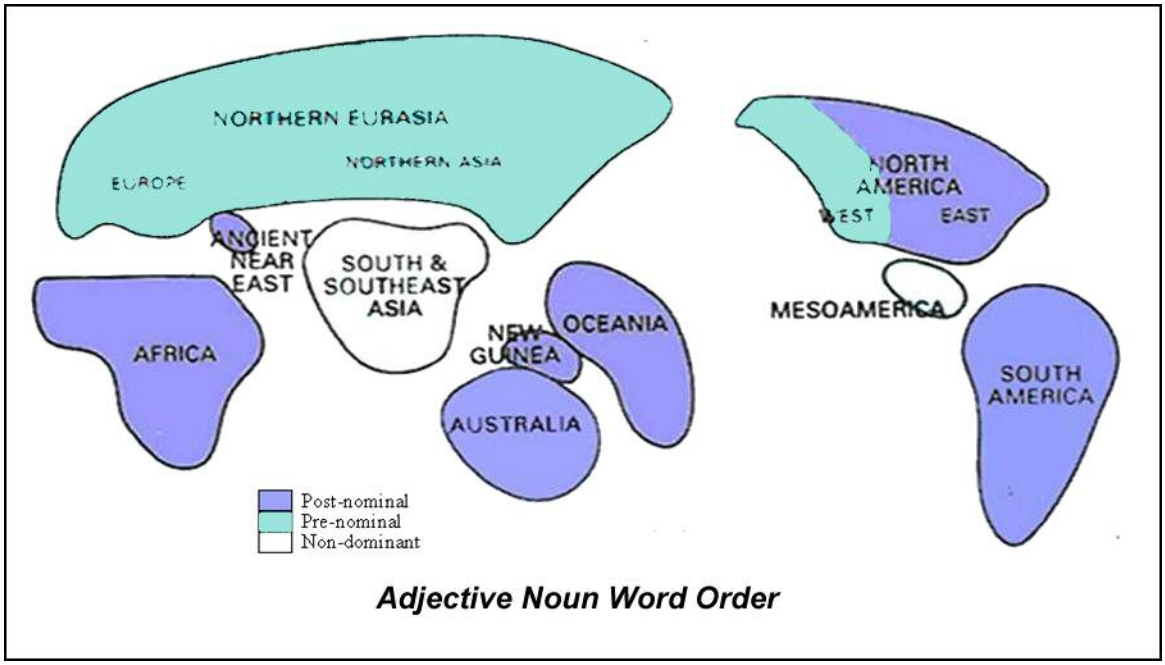
Note: Chi-square tests: probability shown when significant, n.s.= not significant. Dryer's test: S=significant, n.s.= not significant, n.t.= not testable. Adapted with modification from Nichols (1992)

These results indicate that there are significant differences in the observed frequencies for the ordering of the adjectives and noun:

- when the 12 areas designated by Nichols are compared with one another;
- when the six continents are compared with one another;
- when the five areas within Old World are compared with one another;
- when the four areas within New World are compared with one another;
- and when the seven areas within the Pacific and New World are compared with one another.

The significance of the findings for the sample as a whole, within macroareas, and between continents suggests that the ordering of the adjective and noun may be greater than continental in its scale of geographical patterning. Looking at the Map (below) lends further credence to this idea. The map visually represents the dominance and non-dominance patternings of AN WO in the 12 areas identified by Nichols. Note that Europe and Caucasus, Northern Eurasia and Western North America are functioning as a bloc with prenominal placement of the adjective being the dominant pattern. Nichols describes this type of patterning as "continuities between adjacent continents" (p. 204). Thus, the overall impression is that the WO of the adjective and noun is larger than continental in its scale of geographical patterning.

FIG. 24 MAP OF ADJECTIVE NOUN WORD ORDER



Map adapted and modified Nichols (1992)

10.2 No Patterning for the Ordering of Demonstrative Noun WO: Africa with its Own Distinctive Profile

Table 34 below summarizes the results to be reported in this section. Within the sample as a whole, there were significant findings at the 0.01 level on the chi-square test and on the Dryer Test for both All Areas and Continents. Within the macorareas, the Old World was found to be significant on both the chi-square at the 0.01 level and on the Dryer Test. In addition, within the macroareas the combination of the New World and Pacific area was found significant at the 0.05 level on the chi-square test, but not on the Dryer Test.

Table 34. Levels of significance for word order of demonstrative and nouns within and between areas

	Levels of significance	
	χ2	**Dryer**
Differences within the sample as a whole		
All Areas	<0.01	S
Continents only	<0.01	S
Within macroareas		
Old World	<0.01	S
Pacific	n.s.	S
New World	n.s.	S
New World & Pacific	<0.05	n.s.
Between macroareas		
Old World vs. Pacific vs. New World	<0.01	n.s.
Old World vs. others	n.s.	n.t.
Pacific vs. others	n.s.	n.t.
New World vs. others	<0.01	n.t.
Old World vs. Pacific	n.s.	n.t.
Pacific vs. New World	<0.05	n.t.
Old World vs. New World	<0.05	n.t.

Note: Chi-square tests: probability shown when significant; n.s.= not significant. Dryer's test: S=significant, n.s.= not significant, n.t.= not testable. Adapted with modification from Nichols (1992)

Between macroareas, the New World vs. others was found significant at the 0.01 level on the chi-square test. Furthermore, The Old World vs. New World and the Pacific vs. New World were found significant at the 0.05 level on the chi-square test. Finally, the Old World vs. Pacific vs. New World was found to be significant at the 0.01 level, but not on the Dryer test. No other area or permutation of areas was found to be significant by either test.

These results indicate that there are significant differences in the observed frequencies for the ordering of the demonstrative and noun:

- when the 12 areas designated by Nichols are compared with one another;
- when the six continents are compared with one another;
- when the five areas within the Old World are compared with one another;
- when the five areas within the Old World and the three areas within the Pacific and the four areas within the New World are compared with one another;
- when the New World and the other two macroareas combined are compared with one another;
- when the Pacific and the New World are compared with one another;
- when the New World is compared with the Old World;
- and when the New World is compared with the Pacific.

Initial inspection of the data might lead one to assume that the New World is functioning as a bloc. Note that the New World is of importance in many of the above observations. However, a closer inspection of the data (See Table 35 below, formerly Table 6) reveals that most of the variability is contributed by the resounding numbers for Western North America (28 prenominal and 1 post-nominal). Other than that anomaly one finds a consistent 3:1 ratio throughout the rest of the New World, and a 3:2 ratio in the other two macroareas. Figure 25 provides a visual representation of the dominance and non-dominance patterns for demonstrative noun WO. The

sheer dominance of prenominal placement of the demonstrative becomes readily apparent with only Africa exhibiting a different and distinctive profile with what Nichols terms "continent-specific variation" (p. 204). One would not be able to conclude that there is a scale of patterning greater than continental for demonstrative noun word order.

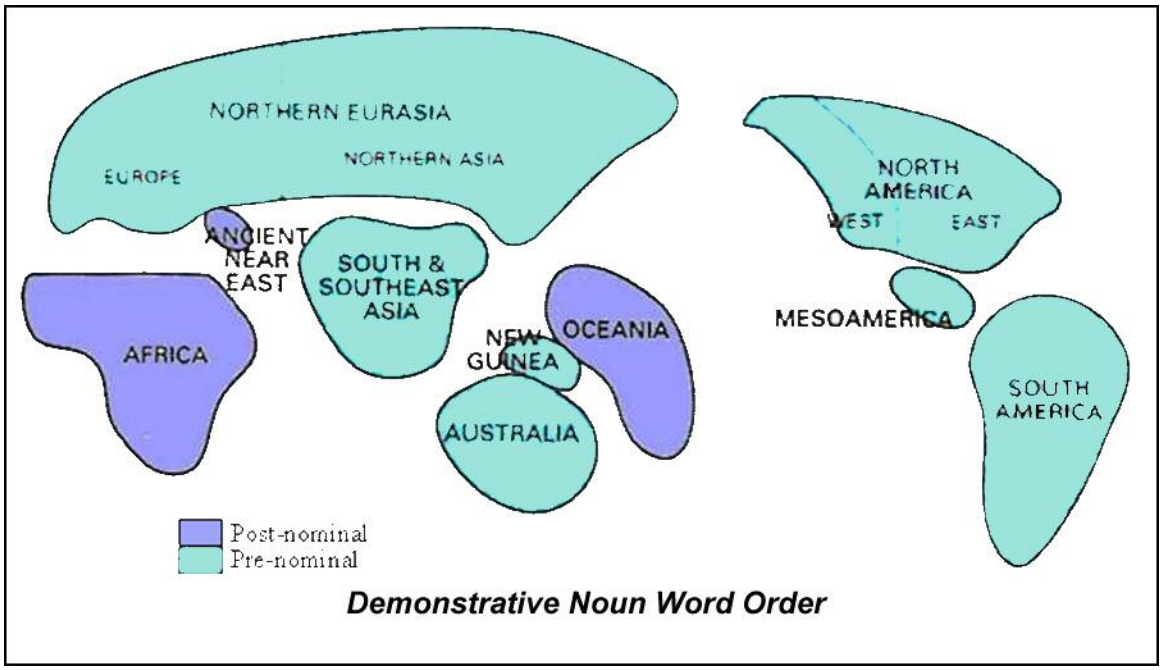
Table 35. (formerly Table 6). Demonstrative noun word order by area

Area	DN	No Dominant Order	ND	ID*
Africa	**6**	**1**	**11**	**1**
Ancient Near East	**1**		**4**	**0**
Europe and Caucasus	**9**		**1**	
Northern Eurasia	**10**			**1**
South & S.E. Asia	**5**		**4**	**1**
Old World total	**31**	**1**	**19**	**3**
New Guinea	**12**	**1**	**10**	**1**
Australia	**13**		**4**	**2**
Oceania	**3**		**4**	
Pacific total	**28**	**1**	**18**	**3**
Western North America	**28**		**1**	**3**
Eastern North America	**6**	**3**	**2**	**1**
Mesoamerica	**6**	**1**	**2**	**1**
South America	**8**	**1**	**3**	**3**
New World total	**48**	**5**	**8**	**8**
World totals	**107 (67%)**	**7 (4%)**	**46 (29%)**	**14**

* Lack of adequate information at this time or lack of information and unlikely to get any additional information.

Map adapted from Nichols (1992)

FIG. 25 MAP OF DEMONSTRATIVE NOUN WORD ORDER



Map adapted and modified Nichols (1992)

10.3 Subcontinental Patterning of the Ordering of Intensifier Adjective WO

Table 36 below summarizes the results to be reported in this section. Within the sample as a whole there were significant findings at the 0.01 confidence level on the chi-square test and the Dryer Test for Continents and at the 0.01 confidence level on the chi-square test and the Dryer Test for All Areas.

Table 36. Levels of significance for word order of intensifier and adjective within and between areas

	Levels of significance	
	$\chi 2$	**Dryer**
Differences within the sample as a whole		
All Areas	<0.01	S
Continents only	<0.01	S
Within macroareas		
Old World	<0.01	S
Pacific	n.s.	S ?
New World	n.s.	S
New World & Pacific	<0.05	S
Between macroareas		
Old World vs. Pacific vs. New World	n.s.	n.s.
Old World vs. others	n.s.	n.t.
Pacific vs. others	<0.01	n.t.
New World vs. others	n.s.	n.t.
Old World vs. Pacific	<0.01	n.t.
Pacific vs. New World	n.s.	n.t.
Old World vs. New World	n.s.	n.t.

Note: Chi-square tests: probability shown when significant; n.s.= not significant. Dryer's test: S=significant, n.s.= not significant. ? = questionable because of small sample numbers. Adapted with modification from Nichols (1992)

Within the macroareas there were significant findings at the 0.1 confidence level on the chi-square test and on the Dryer Test for the Old World and at the 0.05 confidence level and the Dryer Test for the Colonized areas. In addition, the Pacific, while not yielding significant results on the chi-square test, did test significantly on the Dryer Test.

Between macroareas, The Pacific vs. Others and the Old World vs. Pacific yielded significant results at the 0.01 confidence level on the chi-square test, as well as significance on the the Dryer Test. No other area or permutation of areas was found to be significant by either test.

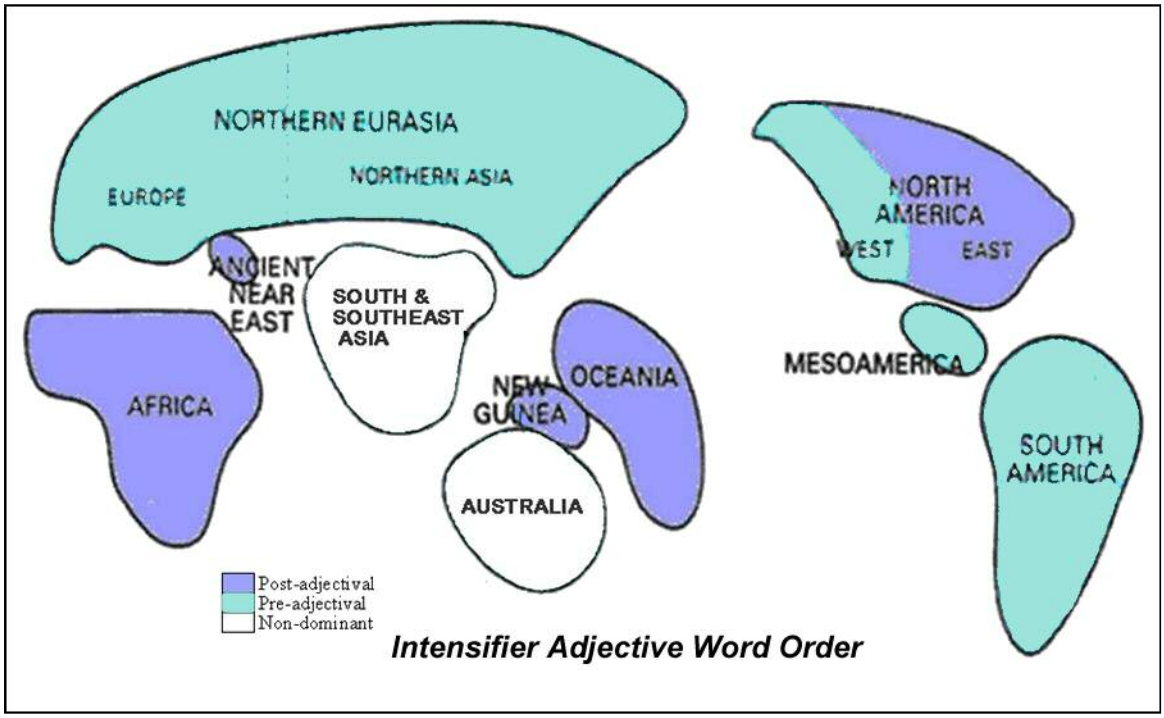
These results indicate that there are significant differences in the observed frequencies for the ordering of intensifiers and adjectives:

- when the 12 areas designated by Nichols are compared with one another;
- when the six continents are compared with one another;
- when the five areas of the Old World are compared with one another;
- when the four areas within the New World are compared with one another;
- when the seven areas within the Pacific and the New World are compared with one another;
- when the Pacific as a macroarea is compared with the other two macroareas.
- when the Pacific as a macroarea is compared with the New World as a macroarea.

While most of the data points to the ordering of the intensifier and adjective as operating on a less than a continental scale, there is some indication that the Pacific seems to be behaving differently. However, if one consults more closely the frequency results of the intensifier and adjective

(Table 37 below, formerly Table 8), one would see that within the Pacific, Australia is behaving very differently from the rest of the Pacific. Thus, it appears in all likelihood that this is an example of a subcontinental patterning.

FIG. 26 MAP OF INTENSIFIER ADJECTIVE WORD ORDER



Map adapted and modified from Nichols (1992)

Table 37. (Formerly Table 8) Adjective intensifier word order by area

Area	IA	No Dominant Order	AI	ID*
Africa	**4**		**9**	**6**
Ancient Near East	**1**		**2**	**2**
Europe and Caucasus	**9**		**0**	**1**
Northern Eurasia	**7**		**1**	**3**
South & S.E. Asia	**3**		**3**	**4**
Old World total	**24**	**0**	**15**	**16**
New Guinea	**1**	**0**	**9**	**14**
Australia	**3**		**3**	**13**
Oceania	**1**	**1**	**4**	**1**
Pacific total	**5**	**1**	**16**	**28**
Western North America	**11**	**1**	**3**	**17**
Eastern North America	**1**	**0**	**5**	**6**
Meso America	**4**	**2**	**1**	**3**
South America	**6**	**0**	**4**	**5**
New World total	**22**	**3**	**13**	**31**
World totals	**51 (52%)**	**4 (4%)**	**44 (44%)**	**75**

* Lack of adequate information at this time or lack of information and unlikely to get any additional information.

11. Summary of All Results

11.1 Goal of this Study

The goal of this study was to ascertain whether any of the PWO features qualified as a typological marker. A typological marker is a feature that demonstrates grammatical stability, exhibits moderate or better genetic stability, possesses fair or better areal stability and has a scale of areal patterning which is continental or larger in size. In order to pursue this line

of inquiry, frequency data was collected, genetic and areal groupings of stocks were compared, statistical analyses of PWO features in relation to H/D marking, morphological complexity and alignment were conducted and the areal patterning of the PWO features was evaluated.

11.2 Frequency Data

The frequency data from this study identifies the dominant WO for adjectives and nouns as NA. The Dryer Test confirms the strength of this trend. Overall, one sees a strong trend, but it does not constitute a universal. In order to fulfill the universality criterion, NA WO would have to be the dominant WO on each of the six continents, and yet it does not quite reach that level of generality as NA WO is found to be dominant on only five of six continents.

The data for demonstratives and nouns shows a very robust DN patterning. The Dryer Test identifies this as a moderately strong trend. Again, there is no indication that DN WO is a universal, as it is only dominant on four of the six continents.

The frequency data for adjectives and intensifiers weakly suggests that the dominant WO is IA. The Dryer Test offers no support for that observation as the WO for intensifiers and adjectives is evenly split between

the six continents with three being IA and three being AI. Obviously, there is no indication that IA WO qualifies as a universal.

11.3 Genetic and Areal Stability

Genetic stability has to do with the likelihood of a feature being shared between languages as a result of family inheritance. Areal stability has to do with the likelihood of a features being shared between languages in an area as a result of diffusion. Comparing the relative genetic and areal stability of the PWO features studied here with those of Alignment, Complexity, H/D and CWO yielded some interesting and, in some regards, surprising results.

When compared with these aforementioned features, the PWO of adjectives and nouns appears to be far less genetically stable than Alignment and Complexity, but more genetically stable than CWO. The order of NA resembles H/D in its level of genetic stability. In addition, the PWO of adjectives and nouns appears to be highly prone to areal spread. In general, one would describe the PWO of adjectives and nouns as having moderate genetic stability and possessing strongly areal stability.

The PWO of demonstratives and nouns yields somewhat similar results as those of the PWO of adjectives and nouns. The PWO of

demonstratives and nouns appears to be far less genetically stable than Alignment and Complexity, but much more genetically stable than CWO. It appears that the PWO of demonstratives and nouns is moderately prone to areal spread. There are some subtle indications that the genetic stability of demonstratives and nouns is perhaps a little stronger than that of adjectives and nouns.

The PWO of intensifiers and adjectives is somewhat similar to that of demonstratives and nouns. The PWO of intensifiers and adjectives exhibits moderate genetic stability, as well as moderate areal stability. If the numbers for PWO of intensifiers are reliable, then the PWO of intensifiers may be even more genetically stable than the other two PWO features. This is based on the observation that in two scales (see Figure 23) the PWO of intensifiers and adjectives was on the very high end of the genetic stablility scale.

11.4 An Association Between PWO Features and the Feature of Complexity Found.

Is there a strong association between any of the PWO features and those of Complexity, Alignment and H/D? A strong association would suggest that a PWO feature was predictive of the other features. As previously noted, Nichols believes that this predictiveness is an indication of grammatical stability. Grammatical stability is a necessary condition for a PWO feature to be potentially identified as a typological marker. A significant relationship was found between NA WO and Complexity as well as between IA WO and Complexity. Therefore, it appears that two of these PWO features could be described as grammatically stable.

11.5 Varied Areal Patterning for Each of the Three PWO Features

Distributions were evaluated to determine possible areal patterning. Based on those observations, the next question was what size or dimension the patterning displayed. Nichols has identified a range of geographical patterning from *hotbeds* to *global clines*. Hotbeds are subcontinental in nature and are characterized by the highly dense presence of a feature in a small area with a few outerliers. An example of a hotbed patterning is noun

classes. Global clines are patterns that cover the entire Earth. This type of configuration exhibits a gradual increase or decrease in frequency as one goes from east (Africa and Europe) to west (New World) globally. An example of this type of patterning is inclusive/exclusive oppositions that show a distinct frequency patterning as one goes east to west across the globe. Table 38 below captures this type of patterning for inclusive/exclusive oppositions:

Table 38. Percentage of languages in each area having selected marker

	Inclusive/exclusive pronouns
Australia	91%
Mesoamerica	60%
South America	55%
S & SE Asia	54%
E. North America	46%
W. North America	31%
New Guinea	26%
Northern Asia	18%
Africa	14%
Europe	10%

Adjective noun WO was found to have a scale of patterning larger than continental in size. Demonstrative noun WO appeared to have no specific type of patterning, although one continent was found to have its own distinctive profile. Intensifier adjective WO appeared to have a sub-continental patterning.

CHAPTER 4: DISCUSSION

1. PWO Frequency: Consistent with Previous Studies?

In typological literature, frequently there are comments that certain languages have "free" S-V-O word order. While it was possible for the PWO items that are the focus of this study to be free, the fact that this was rarely mentioned suggests that there is a strong tendency for adjective, demonstratives and intensifiers to have a specific position — more so than subjects, verbs, and objects. This seems to be in keeping with an observation made by Croft (1991) who suggests the generalization that the lower the morphosyntactic level (clausal to phrasal); the greater the likelihood of a slightly more rigid word order.

The PWO frequency results arrived at in this study are somewhat in keeping with past typological surveys. This study found that 52% of the languages of the world place the adjective after the noun. Hawkins (1983) reported that in 55% of languages NA was the dominant order for 350 languages surveyed. Dryer (1985) did a study in which he focused on controlling sampling bias by measuring frequency in language families. He found that NAWO accounted for 47% of the families, ANWO accounted for 33% of the families and non-dominant WO accounted for the remaining

20%. In 1988, Dryer found that 64% of the 287 languages surveyed were NA. In the 1988 study, controls for genetic and areal bias were in use. In 2005, Dryer describes NA to be the dominant modification pattern in 64% of the languages surveyed. The 2005 study is based on 1,213 languages sampled and does not control for genetic and areal bias.

In the present study it was found that in 67% of the languages surveyed the adnominal demonstrative precedes the noun. Previous studies on demonstrative noun word order are not quite as common. Hawkins (1983) found DN order to be the dominant order in 63% of the 158 languages surveyed. In a 1992 study, Dryer found that 66% of languages sampled and controlled for bias have the demonstrative precede the noun. In a non-controlled setting, Dryer (2005b) found DN to be in approximately 50% of the cases. Excluding the non-controlled study by Dryer the numbers are very consistent for placement of the demonstrative in relation to the noun.

In the present study, 52% are pre-adjectival in the placement of the intensifier, 44% are post-adjectival and 4% are non-dominant in their placement. Dryer (1992) in a controlled study found roughly 57% of the languages sampled with identifiable order were pre-adjectival, while 43% were post-adjectival. In a non-controlled survey, Dryer (2005c) reports that

46% of the languages have the intensifier preceding the adjective, 42% have the intensifier following the adjective and 12% of the languages show no dominance. The results for this dissertation and Dryer's (1992) are similar. Of significance is that in each of the studies pre-adjectival intensifiers are consistently either the majority or plurality.

It should be noted that if one looks at the number of languages that Dryer (2005) identifies in terms of placement of noun and adjective and noun and demonstrative, the totals are 1,213 and 1,085 respectively. However, when one looks at the reported numbers for degree words and adjectives, the number plummets to 437 (Dryer, 2005c). These proportions are even starker than the proportion of languages gathered in this study—165, 159 and 93 respectively. The key issues are, what is considered important and the implications of the data.

The problem is that while verbs and nominals are invariably topics in grammar books, a detailed discussion of modification is less frequent. Grammars typically and predictably begin with comments on the phonetic inventory and phonological system followed by discussion of morphology, verbal systems, nominals, pronominals, syntax and clauses, usually in that order. Some of the grammars end with a few texts and possibly a dictionary. While intensifier definitions such as *very, really, so,* and *too* can often be

accessed when dictionaries are available, there are just not enough instances to make a valid decision.

Moreover, it is rare to find a chapter or even a section devoted to intensification. When there is mention of intensification it is not always explicitly stated what the position of the intensifier is. Intensification can be accomplished in a number of ways that do not always require a specific intensifier. First, some languages often rely on reduplication to communicate intensification of a noun, verb or adjective. There is also the discourse element of prosodic emphasis that can intensify an element.

In researching for this dissertation, and specifically on Wintu, I did a text analysis of the placement of the intensifier in relation to the adjective, as well as adjective placement in relation to the noun. It required going over 220 pages of text and translation. Twelve instances of intensification were found, while more than 50 modification instances were identified. This underscores the reality that sometimes there may not be enough evidence to warrant a decision.

2. Can Any of the PWO features Under Consideration be Used as a Typological Marker?

To review, in order to qualify as a typological marker, the following four questions have to be answered affirmatively for a specified PWO feature.

1. Does the prevailing order within the PWO feature demonstrate fair or better grammatical stability?
2. Does the prevailing order within the PWO feature demonstrate moderate or better genetic stability?
3. Does the prevailing order within the PWO feature demonstrate fair to moderate areal stability?
4. Does the prevailing order within the PWO feature demonstrate a scale of patterning that is at least continental in size?

An affirmative answer to **all four** questions would mean that the specified PWO in question qualifies as a typological marker. Each individual PWO feature will be discussed. Table 38 is offered as a guide to the discussion.

Table 39. Four conditions to qualify as a typological marker

	Word Order of:		
	A+N	D+N	A+I
Fair or better grammatical stability?	Yes	No	Yes
Moderate or better genetic stability?	Yes	Yes	Yes
Fair to moderate areal stability?	Yes	Yes	Yes
Continental or larger areal patterning?	Yes	Yes	No

2.1 Adjective Noun Order Can be Used as a Typological Marker.

The chi-square test for independence was administered in order to determine whether there is a statistical association between the prevailing order of adjective and noun and the features studied by Nichols i.e., Complexity, Alignment and H/D. The results did support the ordering of adjective and noun as being grammatically stable. This indicates that the WO of the adjective and noun is predictive of the grammatical feature Complexity. In evaluating the genetic and areal stability of the ordering of the noun and adjective, it was found that this feature demonstrated moderate genetic stability and good areal stability. Finally, the prevailing order of the adjective and noun was found to exhibit a continuity between adjacent continents i.e., a larger than continent sized areal patterning. All four questions raised resulted in an affirmative responses. The conclusion to be reached is that the ordering of adjective and noun can potentially be used as a typological marker.

2.2 Demonstrative Noun Order Cannot be Used as a Typological Marker.

The chi-square test for independence was administered in order to determine whether there is a statistical association between the prevailing order of demonstrative and noun and the features of Complexity, Alignment

and H/D. The results did not support the idea that the ordering of demonstrative and noun is grammatically stable. There was no indication that the presence of a specific WO of the adjective and noun was predictive of any of the other grammatical features in this study. In evaluating the genetic and areal stability of the ordering of the noun and adjective it was found that this feature demonstrated moderate genetic stability and good areal stability. Finally, the prevailing order of the demonstrative and noun was found to consistently be prenominal with the exception of Africa. Three of the four questions raised resulted in an affirmative response. It appears that the ordering of demonstrative and noun cannot be used as a typological marker.

2.3 Intensifier Adjective Order Cannot be Used as a Typological Marker.

The chi-square test for independence was administered in order to determine whether there is a statistical association between the prevailing order of intensifier and adjective and the feature of Complexity, Alignment and H/D. The results support the ordering of intensifier and adjective as being grammatically stable. There are indications that the WO of the intensifier and adjective would predict the degree of Complexity. In an attempt to evaluate the genetic and areal stability of the ordering of the noun

and adjective, it was found that this feature demonstrated moderate genetic stability and good areal stability. Finally, the prevailing order of the intensifier and adjective was found to be sub-continental in areal patterning. Only three of the four questions raised resulted in an affirmative response. The conclusion reached was that the ordering of intensifier and adjective cannot be used as a typological marker.

3. Support for Dryer's Ideas

As previously noted, the selection of adjective-noun, demonstrative-noun and intensifier and adjective WO was deliberately based on Dryer's (1988 & 1992) research in which he concluded that these particular phrasal word orderings did not correlate with verb and object. The research in this appears to support that claim. Consider the behavior of PWOA, PWOD and PWOI. None of these behaved exactly like CWO. They were all to varying degrees less areal than CWO. When one looks particularly at the data for demonstrative noun WO, one would have to conclude that demonstrative noun WO could be described as moderately genetic. While data on intensifiers was not quite as clear-cut due to several language groups and areas not being included, the overall data seems to confirm Dryer's

assertion. Intensifier adjective WO is also suggestive of some sort of moderate genetic component.

4. What Contributes to These PWO Features not Being Bound to the Verb and Object?

It is often assumed that the verb object is a key organizing principle for the order of a number of phrasal features e.g., relative clauses, adpositions to name a few (Comrie, 1989; Croft, 1990; and Whaley, 1997). The PWO features in this dissertation do appear to behave differently from other phrasal features which seem to be more tightly bound to the trajectory of verb and object. The question arises, why would these features be more immune to the pull of the verb-object nexus.

Attempts to account for this phenomenon began with Lehman, who simply observed that certain categories patterned after the verb, while others patterned after the object (Whaley, 1997). Too many exceptions to this observation doomed Lehman's ideas. Veneman claimed that the underlying principle had to do with head and dependent ordering with the verb and object respectively. Too many exceptions to the rule, as well as questions about what a head and dependent is, ultimately led to rejection of Veneman's ideas as well (Whaley, 1997). Recently, the two theories that

have received the greatest attention and consideration are Hawkin's (1983) cross-category harmony and Dryer's (1992) branching direction theory.

Hawkins' (1983) cross-category harmony is a quasi-statistical explanation based on the notion of equivalent proportion. If a language exhibits a property where all its dependents precede or follow one category of head, it is likely that an equivalent proportion of dependents will behave in a similar fashion by preceding or following other categories of heads. For example, if one finds in a language that all noun dependents (adjectives, demonstratives, genitives, relative clauses etc.) follow a noun, it is likely that the verb dependents (objects, adverbs etc.) will mirror this behavior by following after the verb as well. Furthermore, if some noun dependents follow after the noun, one would anticipate a similar proportion of verb dependents to follow after the verb and vice versa (Whaley, 1997).

Dryer's (1992) branching direction theory (BDT) is an attempt to explain VO/OV patterning, as well as to account for the non-correlational behavior of AN, DN and IA phrases based on syntactic considerations. Two conditions must be met for a phrase to qualify as a branching category. First, a branching category must have "internal syntactic structure" (Whaley, 1997 p. 91). Consider the noun phrase *song about love and loss*. It can be decomposed into constituents in which the noun *song* is the phrasal head and

is modified by the prepositional phrase *about love and loss*. In addition to having internal structure, a branching category must also be composed of a nonbranching head and a phrasal complement. In this case, the noun *song* constitutes the nonbranching head while the preposition phrase *about love and loss* constitutes the phrasal complement (Whaley, 1997).

With this in mind, an adjectival phrase such as *too fast* will not qualify as a branching category because the intensifier *too* fails to meet the condition of a full phrase as it can neither be "modified nor expanded" (Whaley, 1997 p. 91). The key prediction that BDT makes is that languages are likely to be "consistently right branching or consistently left branching" (Whaley, 1997 p. 92).

Finally, Dryer (2005e) has suggested that what appears as a number of items revolving around the verb and object may in fact be illusory. Rather, all these features just simply correlate with one another and none including verb and object actually have a privileged status. The fact that a large number of elements correlate in their ordering is a fact of language, but the explanation will not be found by speculating on the role of the verb and object.

5. Prenominal Integration

There is another phenomenon that adjective noun and demonstrative noun WO also share. Croft and Deligianni (2001) describe it as an asymmetry in NP word order. This asymmetric WO pattern favors DemN and AN in a way known as *prenominal integration.*

According to Croft and Deligianni, these modifiers, when in a prenominal position, are more *tightly integrated* into the noun phrase than when in a post-nominal position. There are two ways this integration is manifested. One supporting piece of evidence is syntactic in which the ordering of prenominal demonstrative, numeral and adjective modifiers is "virtually identical across languages." The pattern to be found for the prenominal modifiers is Dem < Num < Adj. In contrast, post-nominal modifier positions can vary considerably. This behavior is found regardless of the status of VO/OV distinction. A particularly interesting example is found in Nama, one of the languages covered in this dissertation. While modifiers may come before and after the noun, it is only when they are used as prenominal modifiers that the Dem<Num<Adj WO is strictly adhered to. This is not the case for postnominal modifiers in Nama. Another measure of the prenominal integration is found phonologically with greater

phonological reduction found in prenominal adjective and demonstrative modifiers as opposed to post-nominal modifiers.

6. Speculation on the Strength of Demonstrative Noun WO

There is another issue that warrants further comment. The numbers for demonstrative noun WO appear to be skewed to a much greater extent than those for the adjective and intensifier WO features. The percentage of demonstratives found to be prenominal (62%) versus those found to be post-nominal (28%) is clearly dramatic and compelling. They are comparable to results found by other researchers and as such cannot be considered a fluke. The question that comes to mind is, what is it about demonstrative noun order that would result in these consistently strong results.

What do we know about demonstratives? We know that demonstratives are deictics i.e., linguistic pointing words. Often, demonstratives are accompanied by some type of para-linguistic gesture such as the pointing of a finger, the motioning of a hand, the turning of the head, or a nodding in a particular direction (Perkins, 1992). According to Burling (2005), humans assume an ability to understand a pointing gesture. With ease we can attract a child's attention by simply pointing at something. In doing so we assume that our species is able to comprehend the importance

of such behavior. Implicit also in the act of pointing is that there is to be some sort of response, even if it's merely attending to what is being pointed whether it be movement of eyes, turning of head, or metaphorically speaking the turning of one's attention to a specified item. We also know that all languages have demonstratives. It is a universal property of language.

According to Deutscher (2005), when one starts looking at the origin of grammatical structures, one can often account for many of these structures by looking diachronically in other areas of the grammar. For example, prepositions often are derived from nouns and verbs; articles typically originate from demonstratives; auxiliaries derive from full verbs; modifiers often come from appositve phrases and case markings often develop from demonstratives (Aitcheson, 1996; Perkins, 1992; Croft, 2000; Croft and Deligianni, 2001 and Huford, 2003).

An example of this *grammaticalization* process in English is the evolving use of *go*. Initially, *going* had the meaning of movement such as, *I am going to New York City*. However, in the early 19th century, it became acceptable to say, *I am going to buy a new bed* implying intentional movement to secure a bed. Soon, *going* was used as a near future marker in sentences like *You're going to love that movie*. Today, *going to* has been reduced to *gonna* (Trask, 1996). According to Deutscher (2005), the verb

give has evoved into the prepositions meaning *for* or *to* in numerous languages. He offers an example of medieval Chinese where the verb *yǔ* which once meant the action *give*. Slowly, it lost its independent meaning and began to be used as beneficiary or target marker.

Shuō yǔ ta dao
Speak give him Dao
'speak to him (about) Dao'

(Deutscher, 2005 p.233)

Bybee (1995) cites the history of the past tense ending in English *ed* as another example. This ending was the result of the past form of the verb *do* being placed after a verb to signal past tense. Over time, there was a fusional process leading to the establishment of *ed* to signal past tense. As Aitcheson (1996) says, "Yesterday's discourse is today's syntax; today's syntax will be tomorrow's morphology" (p. 198).

This is not necessarily the case for adnominal demonstratives. Deutscher (2005) reports that it is rare to find an accurate source for the origins of *this* and *that* specifically. Apparently, demonstratives are so far up stream in terms of when and how they were formed that one could think of demonstratives as one of the necessary ingredients in a tool kit to create a language.

These observations suggest that demonstratives are very much a part of our cognitive system as well as our linguistic system. The question then is, why does the demonstrative so often come first when paired with a noun. Words that come first in discourse have meaning. There is value to being first in a sentence, phrase or utterance. Gernsbacher and Hargreaves (1992) note that the first part of an utterance is likely to be recalled and focused on by the listener. That is why they have described it as the "privilege of primacy." Gernsbacher and Hargreaves also believe that the primacy factor supports and promotes quick structure building by the parser. In other words, as the listener is apprehending an utterance, the parser is building structure i.e., deciding whether what is heard is a noun phrase, a verb phrase etc. This theme of ease of processing as it relates to the ordering of elements is often mentioned in the literature (Dryer, 1992; Hawkins, 1994).

It seems reasonable to assume that demonstratives are more likely to precede the modified noun, because the intent is to bring immediate attention to the noun in question. The advantage here is that if a demonstrative comes first, it still signals nounhood or nouniness while at the same time helping the listener to focus in on what specific noun is being talked about. When the demonstrative comes after the noun, obviously nounhood is still immediately available to the parser, but now there is a

delay in the presentation of which noun is being talked about, and, in many cases, where the noun is located. In this way the ordering of the demonstrative prenominally ensures greater efficacy.

7. Recommendations for further study

One of the PWO features in this study has the potential to serve as a typological marker. This does not mean that there are no other options to explore. Rather, we have a slightly clearer path to follow. As Nichols (1992) herself has said, we need to "survey more features and find more typological markers" (p. 260). Nichols has made her own recommendations of features that might have potential as typological diagnostics. Among the features she suggests looking into are: incorporation of objects into verbs; the abstract valence structure of the verbal lexicon; lexicalization of verbal semantic parameters and personal pronoun root consonantism.

While the intensifier adjective results are consistent with other efforts, the results are interesting and at same time perplexing. They are interesting because they suggest a moderate genetic aspect to them. They are perplexing because there were so many instances of insufficient data available. There needs to be much greater care taken to secure accurate results. Perhaps the replacing of languages from the same family that have limited references

with languages from the same family that are more fully studied might lead to results that would instill greater confidence in what is uncovered. Otherwise, we will have to wait for more extensive research or descriptive grammars to be performed which is not necessarily assured.

A larger sampling of languages may be helpful, particularly as it relates to intensifier adjective WO. Among the criteria for the stock and areas studied was the requirement that at least three languages per area and stock be described to validate inclusion of that stock or area in the study. Having worked with the data, as well as having an understanding of the subtle changes that can occur with the shifting of just one feature type, leads me to believe that a larger sample would reduce the undue influence of one language's behavior.

Nichols has identified areas that she describes as *residual zones*. Typical characteristics of these residual zones are areas of high genetic density, high structural diversity, the presence of old language families, an increase in the number of families in the area over time and no lingua franca for the area. It is her belief that these areas are microcosms of an earlier time in the history of languages when greater diversity was present and natural. She has identified Ethiopia and Kenya, Caucasus, North Asia Coast, North Australia, and California as areas that meet these criteria. It might be

worthwhile to take the demonstrative noun WO data and apply it to these specified and described areas to see what demonstrative noun WO looked like in "past time."

Finally, the significant correlations found between the ordering of the noun and adjective and Complexity, as well as the ordering of the intensifier and adjective and Complexity warrants further attention. Nichols in her definition of morphological complexity talks of simply the total number of markings. It may be worthwhile to explore if a particular type of marking e.g., inflection, cliticization etc. is more responsible for the identified relationships. There is much to be considered when searching for an understanding of this newfound relationship between PWO and morphological complexity.

Appendix I: Sample Languages and Sources

= = "Stock name is same as family name, or vice versa. Whether a group is entered as a stock or a family depends on its presumed age" (Nichols, 1992 p.283).

Dryer is mentioned twice because he sometimes changes his opinion. That is why it is important to include both.

Under sources the term *Internet* refers to a language specific web site.

Africa: 19 languages (excluding Beja)

Stock	Family	Sample language	Sources
Afroasiatic	Chadic	Hausa	Hawkins1983; Dryer1988; Newman 1990, Campbell 1991; Heine 2000; Dryer 2005, Schuh 2005; Ruhlen, 2006
Afroasiatic	Cushitic	Oromo	Gragg 1976; Campbell 1991; Heine 2000; Dryer 2005; Gragg 2005; Ruhlen 2006
Afroasiatic	Omotic	Dizi	Allan 1976; Ruhlen 2006
Afroasiatic	Semitic	Amharic	Hawkins 1983; Campbell 1991; Dryer 2005
Afroasiatic	Cushitic	Beja	Hudson, 1976
Khosian	Bushman	!Kung	Snyman, 1970; Campbell 1991; Ruhlen 2006; Horwitz 2006
Khosian	Hottentot	Nama	Campbell 1991; Hagman 2005; Ruhlen 2006
Khosian	?	Sandawe	Greenberg 1963; Heine 2000 Kiessling 2002; Dryer 2005; Eaton 2002; Ruhlen 2006

Kordofanian	Kordofanian	Orig	Schradeberg & Elias 1979; Dryer 2005
Niger-Congo	Mande	Mandinka	Dryer 1988; Colley 1995 Dryer 2005
Niger-Congo	West Atlantic	Fula	Taylor, 1932; Hawkins 1983; Niang 1967; Stennes 1967; Dryer 1988; Fofana and Schleicher 2002; Dryer 2005; Internet, 2005; Ruhlen 2006
Niger-Congo	North Central	Gbeya	Samarin 1966; Hawkins 1983 Dryer 1988; Dryer 2005; Ruhlen 2006
Niger Congo	South Central: Bantu	Luganda	Hawkins 1983;Campbell 1991; Rosetta Project 2005; Dryer 2005; Internet 2005; Ruhlen 2006
Niger-Congo	South Central	Yoruba	Dryer 1988; Pulleyback 1990 Croft 2001**;** Heine 2000; Dryer 2005; Ruhlen 2006
Nilo-Saharan	East Sudanic: Nilotic	Massai	Greenberg 1963; Hawkins 1983; Payne 2005; Dryer 2005
Nilo-Saharan	Kuliak	Ik	Tucker 1972 1973; Dryer 2005
Nilo-Saharan	N. Sudanic	Nera	Thompson 1976; Dryer 1988; Campbell 1991; Dyer 2005
Nilo-Saharan	Ctl. Sudanic	Logbara	Crazzolara 1960
Nilo-Saharan	isolote	Songhai	Greenberg 1963; Dryer 1988; Ruhlen 2006
Nilo-Saharan	isolate	Fur	Greenberg 1963; Dryer 1988 Dryer 2005; Ruhlen 2006

Ancient Near East: 5 languages

Stock	Family	Sample language	Sources
Afroasiatic	Semitic	Akkadian	Ebeling 2004; Paulding 2005
Isolate		Elamite	Hawkins 1983; Dryer 1988; Ruhlen 2006
Hurrian-Urartean	= =	Hurrian	Schroeder (unknown); Greenberg1963; Bush 1964; Hawkins 1983
Indo-European	Anatolian	Hittite	Hawkins 1983; Melchert 2005; Ruhlen 2006
Isolate		Sumerian	Campbell 1991; Dryer 1988; Ebeling 2004 & 2005;Ruhlen 2006

Northern Eurasia western part (Europe and Caucasus): 10 languages

Stock	Family	Sample language	Sources
Isolate		Basque	Greenberg 1963; Hawkins 1983; Dryer 1988; Ebeling 2004; Dryer 2005; Ruhlen 2006; Unibertsitatea (2006)
Indo-European	Armenian	Armenian	Campbell 1991; Internet 2005; Ruhlen 2006
Indo-European	Balto-Slavic	Russian	Hawkins 1983; Campbell 1991; Croft 2001**;** Comrie 1990; Lyovin 1997; Dryer 2005
Indo-European	Germanic	English	Campbell 1991; Horwitz 2005
Indo-European	Romance	French	Hawkins 1983; Campbell 1991; Horwitz 2005; Dryer 2005

Indo-European	Indo-Iranian	Iranian	Lyovin 1997; Dryer 2005
Kartvelian	= =	Georgian	Dryer 1988; Campbell 1991; Hillery 2005; Dryer 2005
Nakh-Daghestanian	Nakh	Chechen	Hawkins 1983; Campbell 1991; Dryer 2005; Ruhlen 2006
	Northwest Caucasian	Abkhaz	Hawkins 1983; Dryer 1988; Campbell 1991; Croft 2001; Dryer 2005
Uralic: Finno-Ugric	Ugric	Hungarian	Hawkins 1983; Dryer 1988 Campbell 1991; Megyesi 2005; Dryer 2005
Uralic: Finno-Ugric	Fennic	Zyrian (Komi)	Hausenberg 1998; Ylikoski 2005

Northern Eurasia, eastern part (Siberia) 11 languages

Stock	Family	Sample language	Sources
Isolate		Ainu	Hawkins 1983; Tamura 2000 Dryer 2005; Ruhlen 2006
Isolate		Gilyak	Gruzdeva 1998; Gruzdeva 2005; Dryer 2005; Ruhlen 2006
Isolate		Japanese	Storm 1996; Blackhouse 2004; Dryer 2005
Isolate		Korean	Hawkins 1983; Dryer 1988; Kim 1990; Campbell 1991; Sohn 2004; Dryer 2005
Luorawetlan	= =	Chuckchee	Hawkins 1983; Nation Master 2005; Dryer 2005; Ruhlen 2006

Mongolian	= =	(Khalkha) Mongolian	Poppe 1970; Bond 1994
Tungusic	= =	Nanai	Campbell 1991
Turkic	= =	Tuva	Hawkins 1983; Anderson & Harrison 1999
Uralic	Samoyedic	Yurak	Déscy 1966; Tereshenko 1973 Salminen 1998; Dryer 2005
Uralic-Yukagir? Isolate?	= =	Yukagir	Dryer 1988; Mazlove (date unknown); Mazlova 2003; Dryer 2005
= =	Yeniseian	Ket	Dryer 1988; Campbell 1991 Dryer 2005; Ruhlen 2006

South and Southeast Asia: 10 languages

Stock	Family	Sample language	Sources
Austronesian	W. Austro-Nesian		
	Chamic	Achenese	Durie 1985; Diessel 2003; Dryer 2005; Ruhlen 206
Isolate		Burushaski	Greenberg 1963; Hawkins 1983; Dryer 1988; Campbell 1991; Grune 1998; Grune 2005; Dryer 2005; Ruhlen 2006
Sino-Tibetan	Tibeto-Burman	Gurung	Glover 1974; Dryer 2005
Sino-Tebetan	Sinitic	Mandarin	Dryer 1988; Campbell 1991 Dryer 2005

Miao-Yao	Miao	Miao	Campbell 1991; Lyovin 1997 Mathews (date unavailable)
Indo-European	Indo-Iranian	Waigali	Haspelmath et. al. (2005)
Dravidian	= =	Kota	Emeneau 1944; Subbaiah 1986; Ruhlen 2006; Horwitz 2006
Isolate		Nahali	Grierson 1902; Kuiper 1962; Ruhlen 2006
= =	Austro-nesian	Temiar	Dryer 1988; Dryer 2005; Ruhlen 2006
= =	Tai	Thai	Greenberg 1963; Dryer 1988; Dryer 2005

New Guinea: 24 languages

Stock	Family	Sample language	Sources
?		Abelam	Laycock 1965; Wilson 1980; Dryer 2005; Ruhlen 2006
?	Sepik Hill	Alamblak	Bruce 1984; Croft, 2001**;** Foley 1986; Dryer 2005; Ruhlen 2006
?	Madang?	Amele	Roberts 1987; Croft 2001; Dryer 2005
?	Torricelli	Arapesh	Fortune 1942; Dryer 1988; Dryer 2005;
Asmat-Ok	Asmat	Asmat	Drabbe 1959;Hawkins 1983; Dryer 1988; Dryer 2005; Ruhlen 2006
Sepik-Ramu	Ram	Awtuw	Feldman 1986; Dryer 2005

?	Koiarian	Barai	Dryer 2005
E. New Guinea Highlands	Gorokan	Hua	Haiman 1980; Hawkins 1983; Dryer 2005
E. New Guinea Highlands	Kalam	Kobon	Davies 1981; Dryer 1988; Dryer 2005; Ruhlen 2006
Finisterre-Huon	Huon	Kâte	Schneuker 1962; Hawkins 1983; Ruhlen 2006
?	Engan	Kewa	Franklin 1971; Dryer 1988; Dryer 2005; Ruhlen 2006
?	Kiwaian	Kiwai	Ray and Baxter 1933; Dryer 1988; Dryer 2005
?	Awyu	Kombai	Dryer 2005; Ruhlen 2006
?	Chimbu	Ku Waru	Rumsey & Merlan 1990; Horwitz 2006
?	Chimbu	Salt-Yui	Irwin, 1974; Dryer 2005; Ruhlen 2006
?	Binanderean	Suena	Wilson, 1974; Dryer 2005
Asmat-Ok	Ok	Telefol	Healey 1965; Dryer 2005; Ruhlen 2006
Sko	Vanimo	Vanimo	Ross 1980
?	Waris	Waris	Brown 1981; Brown 1988; Ruhlen 2006
?	Mek	Yali	Fahner 1979
Upper Sepik	Tama	Yessan-Mayo	Foreman 1974
?	Lower-Sepik	Yimas	Foley 1991; Dryer 2005

Austronesian	Western-Melanesian	Tawala	Dryer 2005

Australia: 19 languages

Stock	Family	Sample language	Sources
Isolate		Tiwi	Osborne1974; Dryer 1988; Dryer 2005; Ruhlen 2006
Northern Australian			
Prefixing		Malak-Malak	Birk; 1976; Dryer 1988; Dryer 2005
		Gunwinggu	Oates 1964
		Kuniyanti	McGregor 1990; Dryer 2005
		Mangarayi	Dryer 1988; Dryer 2005
		Maung	Capell & Hinch 1970; Dryer 1988; Dryer 2005; Ruhlen 2006
		Nyigina	Stokes 1982; Dryer 2005
		Ungarinjin	Rumsey 1982; Dryer 2005
		Warndarang	Heath 1980; Dryer 2005
Non-prefixing		Djingili	Chadwick 1975; Dryer 1988; Dryer 2005
		Garawa	Furby and Furby 1977; Dryer 1988; Dryer 2005
Pama-Nyungan			
Western, bound pronouns		Western Desert	Goddard, 1983; Dryer 1988; Dryer 2005; Ruhlen 2006
		Martuthunira	Dryer 1988; Dryer 2005
Northern, no bound pronouns		Yukulta	Keen, 1983; Dryer 1988; Dryer 2005

Central, no bound pronouns	Uradhi	Crowley, 1983; Dryer 1988; Dryer 2005
	Dyribal	Dixon 1972; Lyovin 1997 Dryer 2005; Ruhlen 2006
Southeaster: bound pronouns	Ngiyambaa	Donaldson 1980; Dryer 2005
Southern	Wemba-Wemba	Dryer 1988; Dryer 2005

Oceania (Micronesia, Melanesia and Polynesia) 7 languages

Stock	Family	Sample language	Sources
Austronesian	Western	Chamorro	Safford, 1903; Preissig 1918; Dryer 1988 Dryer 2005; Ruhlen 2006
Austronesian	E.: nearer	Drehu	Dryer 2005
Austronesian	E.: Remote-Oceanic	Ponapean	Rehg 1981;Dryer 1988; Dryer 2005; Ruhlen 2006
Austronesian	E.: Polynesian	West Futuna	Dougherty 1983; Ruhlen 2006
?	New Britain-New Ireland	Sulka	Dryer 2005
?	Bougainville	Konua	Müller 1954
?	S. Bougain-ville	Nasioi	Hurd, 1977; Dryer 2005; Ruhlen 2006

North America: 44 languages

Stock	Family	Sample language	Sources
Algic	Algonfquian	Cree	Hives 1948; Wolfart 1973; Wolfart 1996; Dryer 2005; Internet (2005)
Algic	Ritwan	Yurok	Robbins, 1958; Dryer 1988; Dryer 2005

Isolate		Atakapa	Swanton 1919; Swanton 1929; Dryer 2005; Ruhlen 2006
= =	Cadoan	Pawnee	Parks 1976; Dryer 2005; Ruhlen 2006
California Penutian	Maidu	Maidu	Dixon 1911; Dryer 2005
California Penutian	Miwok-Costanoan	S. Sierra Miwok	Broadbent 1964; Dryer 2005 Ruhlen 2006
California Penutian	Wintun	Wintu	Pitkin 1984; Dryer 2005
California Penutian	Yokuts	Yawelmani	Newman 1946; Dryer 2005; Horwitz, 2006; Ruhlen 2006
= =	Chinookan	Wishram	
= =	Chimakuan	Quileute	Andrade 1933; Greenberg 1963; Dryer 1988; Mithun 1999; Dryer 2005
Isolate		Chitimacha	Stanton 1919; Swadesh 1946; Hawkins 1983; Dryer 1988; Dryer 2005
= =	Coos	Hanis	Frachtenberg 1922; Dryer 2005; Ruhlen 2005
Eyak-Athabascan & Tinglit	Athabascan	Navajo	Mathews 1906; Reichard 1951; Young and Morgan 1980; Hawkins 1983; Dryer 1988; Campbell 1991; Dryer 2005; Ruhlen2006

Eyak-Athabascan & Tinglit		Tlingit	Swanton 1911; Greenberg 1963 Story and Marsh 1973; Dryer 1988; Dryer 2005; Ruhlen 2006
Isolate		Haida	Swanton 1911; Greenberg 1963; Dryer 1988; Dryer 2005; Ruhlen 2006
Hokan*	Yuman	Diegueño	Langdon 1970; Gorbett 1976; Hawkin1983; Dryer 1988; Dryer 2005;
Hokan*	Pomoan	Eastern Pomo	Kroeber 1911; McLendon 1975; Big Valley 2006; Horwitz 2006; Ruhlen 2006
Hokan*		Chimariko	Dixon 1910; Dryer 1988; Dryer 2005
Hokan*		Salinan	Campbell 1991; Dryer 2005
Hokan*	Chumashan	Ineseño	Dryer, 2005; Applegate, 2006
Hokan*		Karok	Bright 1957; Dryer 2005
Hokan*		Shasta	Silver 1966; Ruhlen 2006
Hokan*		Washo	Jacobsen 1964; Jacobsen 1996; Dryer 2005; Ruhlen 2006
Iroquoian		Seneca	Chafe 1963; Chafe 1967; Chafe 1996; Holmer, 1953; Dryer 2005; Rhulen 2006
Keresan		Acoma	Miller 1965; Dryer 2005
= =	Kiowa-Tanoan	Kiowa	Wonderly, Gibson a & Kirk 1954; Watkins, 1982; Watkins& Mckenzie, 1984; Dryer, 2005

Isolate		Kutenai	Dryer 1992a; Dryer 2002 Dryer 2005
Muskogean		Choctaw	Nicklas 1979; Campbell 1991; Dryer 2005
Isolate		Natchez	Dryer 2005
Penutian	Sahaptian	Sahaptin	Jacobs 1931; Rigsby and Rood 1996; Dryer 2005
= = Dryer	Siouan	Dakota	Boaz and Deloria 1939; 1988; Rood and Taylor 1996; Dryer 2005; Internet (2005)
= =	Siuslawan	Lower Umpqua	Greenberg 1963
Salishan	Main Body	Squamish	Hawkins 1983; Dryer 2005
Tankelma-Kalapuya?	Takelman	Takelma	Sapir 1922; Dryer 1988; Dryer 2005
Isolate		Tonkawa	Hoijer 1946; Campbell 1991; Mithiun 1999; Dryer 2005; Ruhlen 2006
= =	Tsimshian	Gitksan	Dryer 2005
Isolate		Tunica	Stanton 1919; Stanton 1921; 1991; Campbell 1991 Haas 1946; Dryer 2005
Uto-Aztecan	Takic	Luiseño	Sparkman 1905; Malécot 1963: Kroeber and Grace 1960; Dryer 2005;Grune 2005; Horwitz 2006
Uto-Aztecan	Numic	Souther Paiute	Sapir 1930; Horwitz 2006; Ruhlen, 2006

Uto-Aztecan	Southern-Sonoran	Papago	Zepeda 1983; Zepeda 2006
Wakashan	Nootkan	Nootka	Davidson 2002
= =	Yukian	Wappo	Raddin 1929; Li, Thompson & Sawyer 1977; Mithiun 1999; Dryer 2005; Ruhlen 2006
= =	Yuchian	Yuchi	Dryer 1988; Mithiun 1999 Dryer 2005
Isolate		Zuni	Newman 1965; Greenberg 1963; Hawkins 1983; Dryer 1988; Mithiun 1999; Dryer 2005

Mesoamerica: 10 languages

Stock	Family	Sample language	Sources
Otomanguan	W. Branch	Chichimec	De Angulo 1933; Gast 2001; Ruhlen 2006
Otomanguan	E. Branch	Mixtec	Greenberg 1963; Dryer 2005
Tequistlatec-Jiqaque		Chontal	Waterhouse, 1962; Dryer 1988; Cambell 1991; Keller and Placido 1997; Dryer 2005; Ruhlen 2006
= =	Huave	Huave	Radin 1929; Stairs and Hollenbach 1969; Gast 2001; Dryer 2005; Horwitz 2006
Misumalpan	= =	Miskito	Conzemius 1929; Dryer 1988; Internet 2005; Dryer 2005; Ruhlen 2006
= =	Mixe-Zoque	Mixe	Dryer 2005; Ruhlen 2006

Uto-Aztecan	S. Aztecan	Pipil	King 2004; Ruhlen 2006
Isolate		Tarascan	Foster 1969; Ruhlen 2006
= =	Totonic – Tepehua	Tepehua	Dryer 2005
= =	Mayan	Tzutujil	Daley 1985; Dryer 2005

South America: 15 languages

Stock	Family	Sample language	Sources
Maipurean (Arawakan)	Pre-Andine	Axininca Camp	Dryer 2005
Macro-Jê	Jê	Canela-Krahô	Popjes & Popjes 1986; Dryer 2005
Mosetén-Chon?	Chon	Gününa Küne	Casamiquela 1983; Adelaar and Muysken 2004; Dryer 2005
Isolate		Cayuvava	Key 1967; Dryer 2005
Carib		Hixkaryana	Derbyshire 1985; Dryer 2005
Quechumaran?	Jaqu	Jaquaru	Hardman 1983; Adelaar and Muysken 2004; Dryer 2005; Ruhlen 2006
Quechumaran?	Quechuan	Huallaga Quechua	Hawkins 1983; Dryer 1988; Lyovin 1997; Dryer 2005
Jebero-Jivaroan	Jebero-Jivaroan	Jívaro	Pellizaro 1969; Turner 1992; Mowitz 1996; Adelaar and Muysken 2004; Dryer 2005
Tupian	Tupi-Guaraní	Guaraní	Greenberg 1963; Hawkins 1983; Dryer 1988; Dryer 2005
Mapudungu		Mapuche	Smeets 1989; Arnold 1996; Dryer 2005

Nambiquara	Nambiquara	Nambiquara	Kroeker 2001
Mura-Matanawí	Muran	Pirahã	Everett 1986; Dryer 2005
Pano-Tacanan	Panoan	Cashinahua	Cromack, 1969; Montag, 1981; Montag, 2005; Ruhlen, 2006
Sabela (Waorani, Auca)		Waorani	Peeke 1973; Dryer 2005; Ruhlen 2006
Saparo-Yaguan?	Yaguan	Yagua	Payne and Payne 1990; Dryer 2005

Appendix II: Coded Data

	Adjective Noun WO	Demonstrative Noun WO	Adv Adj WO
Africa			
Amharic	1	1	Indeterminate
Dizi	3	Indeterminate	1
Fula	3	3	3
Fur	3	1	Indeterminate
Gbeya	1	3	3
Hausa	1	2	3
Ik	3	3	Indeterminate
!Kung	3	3	
Logbara	3	3	3
Luganda	3	3	3
Maasai (Maa)	3	1	3
Mandinka	3	1	3
Nama	1	1	1
Nera/Nara	3	3	1
Orig	3	3	Indeterminate
Oromo	3	3	3
Sandawe	3	1	1
Songhai	3	3	Indeterminate
Yoruba	3	3	3
Ancient Near East			
Akkadian	3	3	3
Elamite	3	3	Indeterminate
Hittite	1	1	1
Hurrian	3	3	Indeterminate
Summerian	3	3	Indeterminate
Europe & Caucasus			
Abhaz	3	1	1
Armenian	1	1	1
Basque	3	3	1
Chechen	1	1	Indeterminate
English	1	1	1
French	3	1	1
Georgian	1	1	1
Hungarian	1	1	1
Russian	1	1	1
Zyrian-Komi	1	1	1

Northern Asia			
Ainu	1	1	Indeterminate
Chuckchi	1	1	Indeterminate
Gilyak /Nivkh	1	1	3
Japanese	1	1	1
Ket	1	1	1
Korean	1	1	1
Mongolian	1	1	1
Nanai	1	Indeterminate	Indeterminate
Tuva	1	1	1
Yukagir	1	1	1
Yurak, Nenets	1	1	1
South & S.E. Asia			
Achehnese,Aceh Achinese ,Atjeh,	3	3	3 Indeterminate
Burushaski	1	1	1
Gurung	1	1	1
Kota	1	1	indeterminate
Mandarin	1	1	1
Miao	3	3	3
Nahali	Indeterminate	1	Indeterminate
Temiar or Northern Sakai	3	3	Indeterminate
Thai	3	3	3
Wagaili or	Indeterminate	Indeterminate	Indeterminate
New Guinea			
Abelam, Ambulas	1	1	Indeterminate
Alamblak	1	1	3
Amele	3	3	3
Arapesh	1	1	3
Asmat	3	1	3
Autuw	3	1	3
Barai	3	3	Indeterminate
Hua	1	1	Indeterminate
Kate	3	3	Indeterminate
West Kewa	1	1	Indeterminate
Kiwai	1	1	Indeterminate
Kobon	3	3	3
Kombai	3	3	Indeterminate
Ku Waru	3	3	3
Salt-Yui	3	3	3
Sentani	3	1	1
Suena	3	3	Indeterminate
Tawala	3	1	3

Tefol	3	2	Indeterminate
Vanimo	3	3	Indeterminate
Waris	Indeterminate	1	Indeterminate
Yali	Indeterminate	Indeterminate	Indeterminate
Yessan-Mayo	1	1	
Yimas	2	3	Indeterminate
Australia			
Djingili	3	Indeterminate	Indeterminate
Dyirbal	3	1	Indeterminate
Garawa	3	1	Indeterminate
Gunwinggu	2	1	1
Kuniyanti also known as Gooniyanti	3	1	Indeterminate
Malak-Malak	3	3	1
Mangarayi	3	1	Indeterminate
Martuthunira	3	1	Indeterminate
Maung	1	1	3
Ngiyambaa	2	1	Indeterminate
Nunggubuyu	2	1	Indeterminate
Nyigina	Indeterminate	1	Indeterminate
Tiwi	1	1	Indeterminate
Ungarinjin	3	3	3
Uradhi	3	1	Indeterminate
Warndarang	Indeterminate	Indeterminate	Indeterminate
Wemba Wemba	1	1	1
W. Desert	3	3	3
Yukulta aka Ganggalida	1	3	Indeterminate
Oceania			
Chamorro	1	1	1
Drehu	3	3	3
Konua	1	1	3
Nasioi	2	1	Indeterminate
Ponapean, Pohnapeian	3	3	2
Sulka	3	3	3
West Futuna	3	3	3
Western North America			
Acoma	2	1	Indeterminate
Chimariko	1	1	Indeterminate
Diegueno	3	3	3
East Pomo	3	1	2
Gitksan	1	Indeterminate	Indeterminate
Haida	3	1	Indeterminate;

Hanis (Coos)	1	1	1
Ineseño	2	1	Indeterminate
Karok	3	1	1
Kutenai	1	1	1
Lower Umpqua	1	Indeterminate	Indeterminate
Luiseño	3	1	1
Maidu	1	1	Indeterminate
Navajo	3	1	1
Nootka	1	1	Indeterminate
Papago	1	1	1
Quileute	1	1	Indeterminate
S. Paiute	1	1	1
Sahaptin	1	1	Indeterminate
Salinan	2	1	3
Shasta	3	1	3
Squamish	1	1	Indeterminate
Southern Sierra Miwok	2	1	Indeterminate
Takelma	3	1	Indeterminate
Tlingit	2	1	1
Wintu	1	1	1
Wishram	Not available	Not available	Not available
Wappo	3	1	Indeterminate
Washo	1	1	Indeterminate
Yawelmani	1	1	Indeterminate
Yurok	1	1	1
Zuni	3	1	1
E. N. America			
Atakapa	3	1	3
Chitimacha	3	1	3
Choctaw	3	3	3
Cree Plains	2	1	Indeterminate
Kiowa	Only internally headed	1	Indeterminate
Lakhota or Lakota	3	2	1
Natchez	3	Indeterminate	Indeterminate
Pawnee	3	1	Indeterminate
Seneca	Indeterminate	2	3
Tonkawa	3	3	Indeterminate
Tunica	3	2	3
Yuchi	3	1	Indeterminate
Mesoamerica			
Chichimec	3	1	Indeterminate
Chontal	1	1	Indeterminate
Huave	2	3	Indeterminate

Miskito	3	1	3
Mixe Croatlán dialect	1	1	1
Mixtec Chalcatonga	3	3	2
Pipil	1	1	1
Tarascan	3	1	1
Tepehua.	1	Indeterminate	1
Tzutujil	2	2	2
South America			
Axininca Campa	3	Indeterminate	Indeterminate
Canela-Kraho	3	3	3
Cashinahua	3	1	Indeterminate
Cayuvava or Cayubaba	1	1	1
Guarani	3	1	Indeterminate
Gününa Küne	3	Indeterminate	Indeterminate
Hixkaryana	3	Indeterminate	3
Jaqaru	1	1	1
Jivaro, Shuar	1	2	1
Mapuche, Mapudungan	1	1	1
Nambiquara	3	3	3
Pirahã	3	3	3
Huallaga Quechua	1	1	1
Waorani	2	1	Indeterminate
Yagua	3	1	1
Beja, Bedawi	2	2	Indeterminate
Ossetic	1	1	Indeterminate

Stock: Afroasiatic

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Amharic	1	1	Indeterminate
Dizi	3	Indeterminate	1
Hausa	1	2	3
Oramo	3	3	3

Stock: Niger-Kordofanian

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Fula	3	3	3
Gbeya	1	3	3
Luganda	3	3	3
Mandinka	3	1	3
Orig	3	3	Indeterminate
Yoruba	3	3	3

Stock: Indo-European

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Armenian	1	1	1
English	1	1	1
French	3	1	1
Russian	1	1	1
Ossetic	1	1	Indeterminate

Stock: Uralic-Yukagir

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Hungarian	1	1	1
Zyrian-Komi	1	1	1
Yakagir	1	1	1
Yurak/Nanets	1	1	1

Stock: Pama-Nyungan

Languages:	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Dyirbal	3	1	Indeterminate
Martuthunira	3	1	Indeterminate
Ngiyambaa	2	1	Indeterminate
Uradhi	3	1	Indeterminate
West Desert	3	3	Indeterminate
Yukulta aka Ganggallida	1	3	Indeterminate

Stock: Austronesian

Languages	Adj-N WO	Dem-N WO	Intensifier-AdjN WO
Achenese	3	3	3
Chamorro	1	1	1
Drehu	3	3	3
Ponapean/Pohnapean	3	3	2
West Futuna	3	3	3
Tawala	3	1	3

Stock: Uto-Azetcan

Languages	Adj-N WO	Dem-N WO	Intensifier-AdjN WO
Luiseño	3	1	1
Papago	1	1	1
Pipil	1	1	1
South Paiute	1	1	1

Stock: Penutian

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj-NWO
Maidu	1	1	Indeterminate
Sahaptin	1	1	Indeterminate
S. Sierra Miwok	2	1	Indeterminate
Wintu	1	1	3
Yawelmani	1	1	Indeterminate

Area: Ethiopia & Kenya

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Amharic	1	1	Indeterminate
Beja	2	2	Indeterminate
Dizi	3	Indeterminate	1
Ik	3	3	Indeterminate
Nera	3	3	1
Oromo	3	3	3

Area: Near East

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Akkadian	3	3	3
Elamite	3	3	
Hittite	1	1	1
Hurrian	3	3	Indeterminate
Summerian	3	3	Indeterminate

Area: Caucasus

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Abkhaz	3	1	1
Armenian	1	1	1
Chechen	1	1	Indeterminate
Georgian	1	1	1
Ossetic	1	1	Indeterminate

Area: Europe

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Basque	3	3	1
English	1	1	1
French	3	1	1
Hungarian	1	1	1
Russian	1	1	1
Zyrian	1	1	1

Area: Interior Siberia

Ket	1	1	1
Nanai	1	Indeterminate	Indeterminate
Mongolian	1	1	1
Tuva	1	1	1
Yukagir	1	1	1
Yurak	1	1	1

Area: North Asia Coast

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Ainu	1	1	Indeterminate
Chuckchi	1	1	Indeterminate
Gilyak	1	1	3
Japanese	1	1	1
Korean	1	1	1

Area: Oceania (Micronesia, Melanesiaand Polynesia)

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Chamarro	1	1	1
Drehu	3	3	3
Ponapean	3	3	2
West Futuna	3	3	3
Sulka	3	3	3
Konua	1	1	1
Nasioi	2	1	Indeterminate

Area: Southeastern US

Atakapa	3	1	3
Chitimacha	3	1	3
Choctaw	3	3	3
Natchez	3	Indeterminate	Indeterminate
Tunica	3	2	3
Yuchi	3	1	Indeterminate

Area Mesoamerica

Languages	Adj-N WO	Dem-N WO	Intensifier-Adj WO
Chichimec	3	1	Indeterminate
Chontal	1	1	Indeterminate
Huave	2	3	Indeterminate
Mixkito	3	1	3
Mixe	1	1	1
Mixtec	3	3	2
Pipil	1	1	1
Tarascan	3	1	1
Tepehua	1	Indeterminate	1
Tzutujil	2	2	2

Appendix III: Examples from Various Languages

Below are samples from languages researched in this dissertation. As in Appendix I there will be identification of the language by stock and family. The samples will be in this order (if available): adjective noun constructions, demonstrative noun constructions and intensifier adjective constructions. If one sentence can capture all three constructions, then that will constitute the sample. Occasionally, an author's comments will accompany the samples to emphasize some interesting aspect about that language. With one exception every phonetic marking is an exact replication of what was written by the author in describing the language.

Key: This key is derived from Nichols (1992)

= = Stock name and family name are the same. The use of the word *stock* or *family* is a function of the language's presumed age.

? unclear

Africa

Stock	Family	Sample language

Afroasiatic Chadic Hausa

yana da zafi sosai
it is with heat very
'it is very hot'

Wannan rago
this ram
'this ram'

Wad'annan raguna
these rams
'these rams

rago-n nan
ram this
‘this ram’

wad'can raguna
rams those
‘those rams’

Schuh (personal correspondence)

Afroasiatic		**Cushitic**	**Oromo**		
mana	guddaa	kan mootii	nak’amtee	kan jiru	kana
house	big	of the king	Negemte	which is in	that

‘The big house of the king which is Negemte’

(Gragg, p. 191)

Afroasiatic			**Omotic**	**Dizi**
wete	ješ	ts'aniz	t'àgn	
cows	fine	black	two	

‘two fine black cows’

kùgn	wete	jéda	dùendà	k'ankàs (note agreement in this phrase)
four	cows	fine	fat	plural

‘four fine fat cows’

(Allan, 1976 p. 381)

Khosian		**Bushman**	**!Kung**
|hwe	+ |'hom		
horse	beautiful		

‘the beautiful horse’

(Snyman, 1970 p. 96)

Demonstratives: three way distinction this that and yonder

m kwa n! 'heiya uuto'a
I fear lion yonder
'I fear yonder lion.'

E! a kwa n! heisa uuto'a
we fear lions yonder
'We fear yonder lions.'

(Snyman, 1970 p. 114)

Kordofanian Kordofanian Orig

A noun may be followed by an adjective. Such an adjective then takes the prefix of the preceding noun. For example:

k.us k.allo 'a thin bone'

s.us s.allo 'thin bones'

(Schradeberg & Elias, 1979 p. 41)

gálám kék
pencil this
'this pencil'

sálám sés
pencils these
'these pencils'

Niger-Congo West Atlantic Fula

The few descriptive attributive adjectives found in Pulaar have the same class endings as the nouns they modify and are post-nominal. For example,

Mbo soodi oto keso (The noun class marker for oto is *o*)

S/he bought car new

S/he bought a new car

Na'i paydi ɗii fof njeyaama (The noun class marker for na'i is *ɗii*.)

Cows fat the all have been sold

All the fat cows have been sold.

(Fofana & Schleicher, 2002 pp. 118-119)

Pu**laar dialect**

o neddo

this person 'this person'

neddo o

person the 'the person'

(Fofana & Schleicher, 2002 p. 65)

Gambia variety

Hökk-am deptere ndé(')e

Give-me book that

Give me that book

(Arnott, 1970 p. 137)

Adamawa dialect

dàaydum masín

far very very

'very far'

ŋgésa dúudi masín

field large very

'very larger field'

(Stennes, 1967 p. 154).

Niger-Congo North Central Gbeya

tɛ´kç-ríp ó tú wí-ré
in the eyes of black people

(Samarin, 1966 p. 81)

Closed class adjectives: bú 'white,' bura 'very large,' dé 'good,' dé?dé 'good,' mbé 'new,' and sóó 'small' For example:

Bú záan 'white clouds'
Dé koo 'a good woman'

zoro-́ɛɛ̀ nćć gan dé rɔ (rhotasized)ɔ ná
fish this doesn't good taste
'this fish doesn't taste good'

(Samarin, 1966 p. 107)

á ʔdɛ́
old very
'very old'

(Samarin, 1966 p. 82)

Nilo-Saharan East Sudanic: Massai

In-tapúkà	aré	sikíto	sapúki
FPL-flower.PL.acc	two.acc	yellow.pl.ACC	big.PL.ACC

ɔ (rhotasized)	ɛ́nkáÍ	kIt'I	olêŋ
and	FSG-another.ACC	small**.**ACC	very

‘two big yellow flowers and another very small one’

ɛlɛ́	payián	tását	olêŋ
this.M.ACC	man.ACC	ancient.ACC	very

‘this very old/elderly man’

(Payne, 2005)

Nilo-Saharan Kuliak Ik

Noun-Adjective

ńt-á ɓɛ́ɗ-í-à	wik-a	ní-gaan,	ɓɛ́ɗ-í-à	wik-a	ní-marán
I do not want	children	bad,	I want	children	good
I do not want bad children,			I want good children.		

Demonstrative Suffixes:

im-ana	this child	wik-ani	these children
im-ane	that child	wik-ani	those children
im-ake	yonder child	wik-aki	yonder children
im-akeyɛk’a	yonder far off child	wik- akiyɛk’a	yonder far off children
im-akékéké	yonder far off child	wik- akiyɛk’átà	yonder far off children

(Tucker, 1972 p.191)

Nilo-Saharan N. Sudanic Nera

wal	šinku	yi	kaba:gi
house	small	this	around-from

‘around from this small house’

wal	sanni	šinku
house	very	small

‘very small house’

(Thompson, 1976 p. 487)

Nilo-Saharan **Ctl. Sudanic** **Logbara**

mvá mǒkɛ́-rï
child good
‘a good child’

mvá wɛrɛ ’dï
child small this
‘this small child’

mǒkɛ́ ŋàrö
good very
‘very good’
(Crazzolara, 1960)

Ancient Near East

Stock	Family	Sample language

Hurrian-Urartean **= =** **Hurrian**

The modifier is a nominal with adjectival suffix –he.

Tuθrat [ta+an] Hurwohe ewerne
Tušratta Hurrian king
‘Tušratta, the Hurrian King’

(Bush, 1964 p.150)

ti-wə an-ti
word this
‘this word’

(Bush, 1964 p.106)

Indo-European **Anatolian** **Hittite**

ki: tuppi
this tablet
‘this tablet’

ke: tuppias udda:r
these of the tablet words
‘these words of the tablet

asi: mdmiyas
that word/affair
'that word/affair'

apa:
'that near you' (Three way distinction in Hittite just established by Petra Geodegebuure in 2002)

(Melchert, personal correspondence2005)

Northern Eurasia western part (Europe and Caucasus):

Stock	Family	Sample language	Sources
Kartvelian	= =	**Georgian**	

es dzalian tskheli dghe
this very hot day
'this very hot day'

is namdvilad ghonieri tskheni
that really strong horse
'that really strong horse'

(Hillery, 2005)

Uralic: Finno-Ugric Fennic **Zyrian (Komi)**

adjective-noun: ydzhyd kan'
big cat

demonstrative-noun: tajö mort-ys
this human.being-3SG.POSS
(3SG.POSS here meaning 'determinative')

intensifier-adjective: zev ydzhyd kan'
very big cat

(Ylikoski, 2005)

Northern Eurasia

Stock	Family	Sample language

Isolate **Ainu**

pirka cise
Beautiful house
'beautiful house'

(Tamura, 2000 p. 26)

toan húci
that grandmother
'that grandmother/elderly'

(Tamura, 2000 p. 186)

Demonstratives: same place, nearby and distant

earkinne kú-iruska
extremely 1P-SING-NOM-be angry
'I got really mad.'

wen-ipokas
excessively-ugly
'horrendously ugly'

(Tamura, 2000 p. 209)

Isolate **Gilyak**

Rajgun urla čoŋyŋ'ivx mu-ny-d'.
Rajgun good fisherman be-FUT-FIN
'Rajgun will be a good fisherman."

(Gruzdeva, 2005 p. 40)

N'i ty urk vi-ny-d'-ra.
I this night go-FUT-FIN-PTL:Pred
'I am leaving this night.'

(Gruzdeva, 2005 p. 27)

Isolate **Japanese**

rippa na setubi
impressive ADNOM facilities
‘impressive facilities’

(Blackhouse, 2004 p. 59)

hizyoo.ni rippa na tatemono
very impressive ADNOM building
‘ a very impressive building’

(Blackhouse, 2004 p. 60)

kono mushi wa shinde imasu
this insect topic marker is dead
‘This insect is dead.’

(Storm, 1996 p. 177)

Turkic **= =** **Tuva**

olar ɨrak čerden čedip kelgenner
they far land-ABL reach-CV CLOC-PAST.1-PL
‘They came from a distant land’

(Anderson & Harrison, 1999 p. 16)

men bo numnu nomčudum
I this book read-PAST.ll-1
I read this book.

(Anderson & Harrison, 1999 p. 17)

Uralic **Samoyedic** **Yurak (Nenets)**

jil'ebej veba
green leaf
‘green leaf’

pirc'ah xojh
high hills
‘high hills’

(Déscy, 1966 p.67)

Uralic-Yukagir?
Isolate? = = Yukagir

tanum	c'istE	jaqa-i:li	naGa	c'om-o:-d'E	pe:-k
that	completely	reach-1PL	very	big-V-IMPF.PART	mountain-PRED

tanum	l'e:-nu-l	c'irc'E-g-ej-nu-l.
that	Be-IMPF-SF	jump-ITER-PERF-IMPF-SF

We all went. There was a very high shining hill there.

Online documentation of Kolyma Yugakir July 6, 2005 http://ling.uni-konstanz.de/pages/home/nikolaeva/documentation/index.html

Recorded from Grigorij Shalugin (1923-?) in 1987.

South and Southeast Asia

Stock	Family	Sample language
Austronesian	**W. Austronesian**	
	Chamic	**Achenese**

bak	=	pisang	=	manyang	=	lõn
tree		banana		high		I
Generic -		Head-		Attribute-		Possessor

‘my tall banana tree’

(Durie, 1985 p. 108)

aneuk	=	lõn	= nyan
child		I	that
Head-		Possessor-	Demonstrative

‘that child of mine’

(Durie, 1985 p. 108)

Isolate **Burushaski**

se but sua hagor
this very good horse
'this very good horse'
(Grune, 2005)

Sino-Tibetan **Tibeto-Burman** **Gurung**

kwí sa.rón garib mxi-maę
some extremely poor person-PL
SP:pron M:AdjunctP H:n Num:plural
'Some extremely poor people'

cá mxi só-bra
that person three-hundred
Sp:pron H:n Num:NumP
'those three hundred people'
(Glover, 1974 p. 97)

Dravidian = = Kota

ade: rvne
these Gods
'these Gods'

(Subbaiah, 1986 p. 174)

New Guinea

Stock	Family	Sample language

? **Abelam**

mʌkʌl ʌkʌcñə
small knife
'small knife'

(Laycock, 1965 p.95)

ʌny dw (vya)n
this man (hit)P
‘This man hit [me].’

(Laycock, 1965 p.88)

? **Sepik Hill** **Alamblak**

ɨnd bro dboryoh krta graf fẽh-r
Dem big good black wild pig-3SM
‘This good, big, black, wild pig.’

(Bruce, 1984 p. 118)

tat mɨy-mif-t
hard tree-very-3SF
‘very hard tree’

(Bruce, 1984 p. 119)

? **Madang?** **Amele**

Jo us nig-ec nag bahic himec ceheleg oso gee
house sleep lie-NOM small emph. emph. up there indef. Not
‘Not just a very small sleeping house up there.’

(Roberts, 1987 p. 97)

? **Torricelli** **Arapesh**

nabin natub otak
that time not yet
‘not yet that time’

(Fortune, 1942 p. 70)

Asmat-Ok Asmat Asmat

Otsjan fano tetamtsjan
Spear short give me
'Give me the short spear'

(Drabbe, 1959 p. 59)

Sepik-Ramu Ram Awtuw

Abbreviated Empathy Hierarchy
[+human]>[+animate]>[-animate]

When a common noun is high in empathy, adjectives often, and more complex Adjective phrases sometimes precede it.

waruke tale
big woman
'big woman'

*waruke taw
*big tree

taw waruke
tree big
'big tree'

(Feldman, 1986 p. 129)

tader waruke
this big
'this (one's) big'

(Feldman, 1986 p. 117)

E. New Guinea
Highlands **Gorokan** **Hua**

Utrepa tava ku′ +Ki +na a′
Ragged old bag (com.) (adj.) woman
‘woman with the torn old net bag’

(Haiman, 1980 p. 237)

E. New Guinea
Highlands **Kalam** **Kobon**

Nipe bɨ aij ibɨɨ/yabɨɨ/yöl.
3s man good very
‘He is a very good man.’

(Davies, 1981 p. 53)

Nibi u nibi an.
Woman that woman who
‘Who is that woman?’

(Davies, 1981 p. 61)

Finisterre-Huon **Huon** **Kâte**

Fic biaŋne
house good
‘a good house’

(Schneuker, 1962 p. 12)

Go buk ira dâŋ biaŋne woseemu
You book that read good things
‘You will read good things in that book.’

(Schneuker, 1962 p. 77)

? **Engan** **Kewa**

ogè áá ‘little man’
rúdu áá ‘short man’
kòbere áá ‘dark (black) man
áá láápo ‘two men’
ogè kòbere áá láápo ‘two little dark men’
rúdu kòbere áá láápo ‘ two short dark ment’

(Franklin, 1971 p. 87)

go wane-ná épé láápo
that daughter husband two
‘that daughter’s two husbands’

(Franklin, 1971 p. 89)

? **Kiwaian** **Kiwai**

wade sime
good banana
‘ a good banana’

(Ray and Baxter, 1933 p. 16)

Ni gamoda orio didiri pai umoro.
this gamoda the young men did not know
‘This gamoda the young men did not know.’

Go gudu pai kiriso irisinago
that gudu (is) not an edible fish
‘That gudu (is) not an edible fish.’

(Ray and Baxter, 1933 p. 7)

? **Chimbu** **Ku Waru**

kung kapo tai
pik fat two
‘two fat pigs’

na-nag pel ekepu kung ilyi kuyud ilyi
my cousin I roasted this pig

(Rumsey & Merlan, 1990 p. 162)

yi kayi we
man good very
'very good man'

(Rumsey & Merlan, 1990 pp. 334-5)

? Chimbu Salt-Yui

yal nol
male red (European)

yal bir
male big

yale bir weni
male big intensifier

yal nol bir weni
male red big very
'a very important European'

na kun irai
my pig that
'that pig of mine'

(Irwin, 1974 p. 42)

siniamo ki
early very
'very early'

migi ma
little very
'very small'

(Irwin, 1974 p. 35)

? **Binanderean** **Suena**

+N		+ata	+N	+N	+	-re
biza	izai	ata	ma	wo	bamu	-re
banana	ripe	C	taro	fish	big	-C

‘a ripe banana, taro, and a big fish’

(Wilson, 1974 p. 85)

bamu	‘big’	bamubake	‘very big’
seka	‘young’	sekasaka	‘very young’
iboi	‘tall’	iboitatana	‘very tall’

(Wilson, 1974 p. 20)

Asmat-Ok **Ok** **Telefol**

ílím (Nn: cloth) iím (A1: black) katíb (A2: small)
‘a small black cloth’

(Healey, 1965 p. 17)

meéb koómi (Ps:Nt1: near this-its) wíik (Nn:Nt2:week)
‘this week’

(Healey, 1965 p. 13)

isé (to: this) yák (D1: across) tanúm (N: man) álob (Nm: two) maak (If: a) bilí D2: those) ítá (Pr: they)
‘both of those two men across there (referred to before)’

(Healey, 1965 p. 34)

Sko **Vanimo** **Vanimo**

hvuŋ vu
stone big
‘a big stone’

Demonstratives agree in number with their noun.

	Masculine	Feminine
‘this’	he	ve
‘that’	hiŋ	biŋ

da he
pig this.m
‘this pig’

bí ve
house this.f
‘this house’

(Ross, 1980 p. 85)

? Waris Waris

Men -ba tambkó Wesengla –ipo -rini.
this topic fish Wesengla river Ablative
‘these (are) fish from the the Wesengla river.’
(Brown, 1988 p. 48)

Hona-di -va inne-ram dihel-v
this money topic food-Allative exist pres.
‘This money is for the purpose of (buying) food.’

(Brown, 1988 p. 47)

Upper Sepik Tama Yessan-Mayo

kelpi nak nugwapa
raw sago plenty
‘lots of raw sago’

gene kwom
far village
‘a faraway village’

(Foreman, 1974 p. 56)

ar wes
that (there) thing
‘that there thing’

(Foreman, 1974 p. 57)

? **Lower-Sepik Yimas**

walŋa-k-m impram
light-IRR-SG basket-SG
'light basket'

impram walŋa-k-m
light basket
'a light baket'

(Foley, 1991 p. 183)

impram p-k
basket-SG SG-PROX
'this basket'

(Foley, 1991 p. 112)

Australia

Stock	Family	Sample language

Isolate **Tiwi**

ŋinaki pəlanəmwani pumpuni
this-m dog is good
'This dog is good.'

Aŋinaki pəlanəmwaka pumpuka
this-f bitch is good
'This bitch is good.'

(Osborne, 1974 p. 56)

kapinaŋki juraɹa pumpuwi pəlaŋəmwawi
these two is good dog-pl
'these two good dogs'

(Osborne, 1974 p. 73)

Northern Australian
Prefixing **Malak-Malak**

Tɛ ŋa t^{y}ɛyöt yinali
Meat 1sgSP red kangaroo big(sgm)
'My big red kangaroo.'

alalk ŋa ninmɛyit^{y}
child 1sgSP little(plf)
‘My little girls.’

alawar nan tɛ lak wöwöntön
woman A(dm) meat eat(meat) 3sgfSP.1(sequ)
‘This/that woman eats/ate the meat.’

(Birk, 1976 p. 146)

mint^{y}eřik<u>man^{y} ŋa</u>!
short <u>too</u>
‘Too short!’

(Birk, 1976 p. 104)

Gunwinggu

gug-bele
Body-white
‘white man’

gun-jmag
kangaroo-good
‘good kangaroo hunter’

(Oates, 1964 p. 33)

Galug nawu bininj yimeŋ
then this man say-past
‘Then this man said…’

(Oates, 1964 p. 91)

gaweyn wanmag
very happy
‘very happy’

(Oates, 1964 p. 78)

Kuniyanti

gamba yijgawoo
water bad
'bad water'

(McGregor, 1990 p. 266)

ngooddoo -ngga yoowooloo garingi gardbinga thiddi
that ERG man wife he:belted:her fight
'That man belted his wife.'

(McGregor, 1990 p. 336)

Maung

Dja gargbin dja arargbi
noun cl. marker big Noun cl. Marker man
'the big man'

(Capell and Hinch, 1980 p. 55)

muga mada walg maŋalaralgjuŋgu
this class marker tree is red
'This tree is red.'

(Capell and Hinch, 1980 p. 92)

Magiń aralba miγa, nabaru iniwuŋ
No true very buffalo he-killed-him.
'No, its quite true a buffalo killed him.'

(Capell and Hinch, 1980 p. 114)

Nyigina

yagurr-dyanu ma-MA-n gud ŋa-raa-MA
bad-INAN.SOURCE GEN-make-pres dead 1sg(II)-fut/IRR-go
'I might die from doing bad things.'

(Stokes, 1982 p. 273)

malu-ŋurru ginydyina wali ginya…yagurr-dyi wamba
NEG-much 3sgDAT/PRO meat dem …old-DAT man
‘that meat (was) certainly not his…the old man’s’

(Stokes, 1982 p. 371)

gadaday ŋan-DI-ny-dyina ginya wamba
search 1sg(I)-do-past-3sgDatPro dem man
‘I search for that man unsuccessfully.’

(Stokes, 1982 p. 176)

ŋan-MI-n-dyuwa ginya yinydyina
1sg(I)-give-pres-2sg0Pro dem 3sgDat/Pro
‘I’m giving you that thing for him.’

(Stokes, 1982 p. 178)

Ungarinjin

minjdjal budmaṛ a gowana njindi
eat 3pl. by means-past goanna that (fem.)
‘They ate that goanna.’

(Rumsey, 1982 p. 146)

ŋa!a -ŋa jindi
sick intensive you are
‘You are very sick.’

(Rumsey, 1982 p. 127)

Warndarang

…ara-jaŋa, ṇabalwayi ṇarugalara
3PL/3SG-AUXC MASG-big MASG-tall
‘big tall man’

(Heath, 1980 p. 106)

Prf-niya	Proximate
a-Prf-ni	Intermediate
Prf-wa Prf-ni	Near-distant
Prf-niñi	Distant
Prf-nñaya	Anaphoric

'Prf' indicates position of noun class prefix

(Heath, 1980 p. 48)

wu-niya	wu-yuni
NC-this	NC-ochre

'this ochre'

(Heath, 1980 p. 105)

"The combination Prf-wa Prf-niya occurs in a sequence translatable *let us abonadon this dugout*. The speaker and addressees were together in a canoe, so it may be that this type indicates a region in the immediate vicinity of both speaker and addressee."

(Heath, 1980 p. 50)

Non-prefixing **Djingili**

badaguru	maingju	imbiiwunjudju
good	words	speak-they-two-do

'They speak good words.'

(Chadwick, 1975 p. 96)

adjuaruŋgamini	unjamigi	djamabilani	binindjaila…
where-from	they-two-come	those-two	men-dual

'Where did those two men come from?'

(Chadwick, 1975 p. 93)

Garawa

	Poss	Head	Modf
nadjba-giyl	naŋaŋ- ø	djalu- ø	bududabududa- ø
see-imp	his-nom	arm-nom	swollen-nom

'See his swollen arm!'

(Furby and Furby, 1977 p. 10)

		Modf	Head	Modf
dudidjba-y	bulla-nduyaŋga	walguř-nji	miyha-wanji	gugudu-wanji
crawl-p	they:d-transloc	big-erg	snake-erg	black-erg

The big black snake crawled past the two of them.'

(Furby and Furby, 1977 p. 10)

		Pri.Head:Modf.NP……..			App.Head
malidjba	bui-ø	ŋagi	djandanji- ø	bayagaḍa- ø	bans- ø
follow	they:d:p-subj	my-nom	son-nom	small-nom	Barnes-nom

'They followed my small son, Barnes.'

Note: Ø signifies locative case on place name

(Furby and Furby, 1977 p. 20)

Pama-Nyungan

Western, bound pronouns **Western Desert**

papa	tjapu	tjuta-ngku	mayi	ngalku-nu
dog	small	many-ERG	veg food (ACC)	eat-PAST

'The small dogs (puppies) ate the food.'

(Goddard, 1983 p. 92)

papa	nyanga	anyma-tjara\
dog	this (NOM)	hunger-HAVING (NOM)

'This dog is hungry'

ngayulu	kuka	nyanga	waka-nu
1sg (ERG)	meat	this (ACC)	spear-PAST

'I speared this meat.'

(Goddard, 1983 p. 113)

inka-wiya,	wati	panya	kura	nguwan	nyuntu
play-neg	man	ANAPH	bad	rather(NOM)	2sg(NOM)

'No playing around, you're the worse man (of us) you know'

(Goddard, 1983 p. 260)

pulka kutu
big really
'really big'

(Goddard, 1983 p. 260)

"Interestingly, pika 'pain, hurt' can precede an adjective or spatial qualifier as an extreme, and somewhat emotionally coloured, superlative-like modifier…"

…pika wirunya kutu
hurt fine really
'…really really excellent'

(Goddard, 1983 p. 261)

Northern, no bound pronouns **Yukulta**

Pa:tYa-kukuwa-niŋki	tạtinta	pirwanta	pitịya
Bite+IND-us(INC)+PL+he+FUT	that+ABS	their+ABS	bad+ABS

ŋawu-zero morp
dog-ABS

'That nasty dog of theirs might bite us (pl).'

(Keene, 1983 p. 230)

Central, no bound pronouns **Uradhi**

utaɣa-mpu	amaŋma(-mpu)	uðumpunɲ	iɣanaŋ-n
dog-ERG	big-ERG	back-ABS	break-PAST

'The big dog broke[the other dog's back].

(Crowley, 1983 p. 372)

ura	yuku	aŋa-nu-:namu
this-ABS	stick-ABS	NOMLSR-GEN-ABS

'This stick is for digging.'

(Crowley, 1983 p. 373)

atan aβukuɲ
a lot big
‘[It’s] very big.’

(Crowley, 1983 p. 382)

Southeaster: bound pronouns **Ngiyambaa**

Bungu-bu=Lu=niŋ-gal miyi babir-u
Many-UNIV=3ERG=3ABS+VIS-PL Make+PAST-THEN big-ERG

dhiŋga:ɳ-gu
creature-ERG

‘He made them all, the huge creature’

(Donaldson, 1980 p. 316)

gaɽul walan manga:n
rock+ABS hard+ABS degree adverb
‘The rock (was) too hard.’

(Donaldson, 1980 p. 316)

ŋadhu gyanhdha-nha ŋidi-bula:-la
I+NOM fear-PRES this+CIRC+DU+EST
‘I fear frightened of these two.’

(Donaldson, 1980 p. 137)

babir dhuga:y
big+ABS indeed
‘(He’s) really big.’

(Donaldson, 1980 p 313)

Oceania (Micronesia, Melanesia and Polynesia)

Stock	Family	Sample language
Austronesian	**Western**	**Chamorro**
mauleg na lahe,		‘good man’
manmauleg	na lalahe	‘good men’
senmauleg	na lahe	‘very good man’

mansenmauleg	na lalahe	‘very good men’
gefmauleg	na palaoan	‘excellent women’
mangefmauleg	na famalaoan	‘excellent women’

(Preissig, 1918 p. 40)

Austronesian	**E.: Remote-Oceanic**	**Ponapean**

pwutako (enclitic)
boy that
‘that boy’

pwutak silimeno
boy three those
‘those three boys’

pwutak reirei silimeno
boy tall three those
‘those three tall boys’

(Rehg, 1981 p. 120)

Austronesian	**E.: Polynesian**	**West Futuna**

ta fatu sore
art rock big
‘the big rock’

as a predicate construction:

ta fatu e sore
the rock is big
‘the rock is big’

(Dougherty, 1983 p. 92)

ta tagata ra
art man that
‘that man (over) there’

a toro nei
art sugarcane this
'this sugar cane'

(Dougherty, 1983 p. 30)

? **Bougainville Konua**

ho aripu ăto
the good house
'the good house'

mō rogare rata\
the bad habit
'the bad habit'

(Müller, 1954 p. 18)

roiraca bo tueita
this-poss. knife
'this knife is mine'

likiliki (after adjective)
'very, really'

(Müller, 1954 p. 19)

? **S. Bougainville Nasioi**

a-un-toong
DEM-NOM-down, north
'that down there or to the north'

a-un-toon-ko
DEM-NOM-down, north-far, moving from speaker
'that down there, descending from us northward'

a-un-toon-peto
DEM-NOM-down, north-near, moving toward the speaker
'that down there, closer, ascending toward us from the north'

(Hurd, 1977)

North America

Stock	Family	Sample language

Algic **Algonquian** **Cree**

nipaheˑwak oˑhi siˑsiˑpa.
they kill-past these ducks
‘They killed these ducks.’

oˑhi nipaheˑwak siˑsiˑpa.
these they kill-past ducks
‘They killed these ducks.’

(Wolfart, 1996 pp. 392-3)

Algic **Ritwan** **Yurok**

ku plohkeloni haʔa·g
the big rock(s)
‘the big rocks

(Robins, 1958 p. 64)

ḱi paʔah
the water (here)

ku paʔah
the water (there)

ḱi wek wera·yoy
this creek
‘this creek’

(Robins, 1958 p. 30)

Isolate **Atakapa**

icak cōklank
poor man
‘a poor man’

cōklank icak
man poor
“The man is poor.’

(Swanton, 1929 p. 139)

pai-bets uc
large too
‘too large’

(Swanton, 1929 p. 140)

= = **Cadoan** **Pawnee**

ase:hari
colt-young
‘young colt’

pari:kiripahki
horn-little
‘little horn’
(Parks, 1976 p. 135)

ti- ‘this; here’ indicates proximity, both spatially and temporally e.g.,

tira:riki aru:sa

this(standing) horse
‘this standing horse’

(Parks, 1976 p. 255)

California Penutian Maidu Maidu

uni´m mai´düm
this man
‘this man’

ani´m mai´düm
that (far off) man
‘that man’

(Dixon, 1911 p. 716)

o´k-pem (verb stem with suffix –*pe*) mai´düm
hungerer man
‘hungry man’

tetē´m (verb stem with nominal subjective suffix-*m* süm
large dog
‘large dog’

(Dixon, 1911 p. 717)

California Penutian Miwok-Costanoan S. Sierra Miwok

CukuH-h·Y-c·y-ʔ
Dog-little old
‘little old dog’

(Broadbent, 1964 p.102)

CytyH ’good’
cyt·yʔ-hHi ‘it looks very good’

maHk·eŋ-ŋHe ‘to get sour’
mak·eŋ-hHi ‘it’s very sour’

(Broadbent, 1964 p.102)

California Penutian Yokuts Yawelmani

kin witibhac̓
these children
‘these children’

kisinwa yɔkɔ·c̓I
these people
‘these people’

(Newman, 1946 p. 240)

= = **Chimakuan Quileute**

tsiẋ hát’c- á·ɬ-owá
very be.good-weather-away
‘It was very good weather.’

(Mithun, 1999 p. 379)

liweli·?ilo sá?a á·sayát
we.shall.take that.present meat
‘We shall take that meat.’

(Mithun, 1999 p 134)

Isolate Chitimacha

According to Swadesh, “Like that of a Latin, the Chitimacha adjective is a substantive and not a mere modifying particle as the English adjective. Adjective inflection coincides with that of a verb, but also has two additional forms called the substantival singular and plural.

Huygi ‘a good one’ not ‘good’

?asi huygi
man ‘a good one’
‘a man, a good one’ not ‘a good man’

(Swadesh, 1946 p.326)

panš kač huyniš
person a rich one
‘ a rich person’

(Swadesh, 1946 p 334

= = **Coos** **Hanis**

Nominal attribute complements precede the noun. When following the noun, they assume a predicative function.

xä´nîs mä
sick person
'a sick person'

mä xä´nîs
'The person is sick.'

(Frachtenberg, 1922 p. 414)

tkwīlē$^{i'}$ wat te´qmas
he is following that (there) woodpecker
'He is following that woodpecker.'

(Frachtenberg, 1922 p. 401)

Eyak-Athabascan & Tinglit **Athabascan** **Navajo**

chidí łichí ígíí naháłnii
car red the one bought
'I bought the red car.'

(Young and Morgan, 1980 p. 295)

díí ashkii sitsilí ʾáťé
this boy is my younger brother
' This boy is my younger brother.'

(Young and Morgan, 1980 p. 31)

Eyak-Athabascan & Tinglit **Tlingit**

he´łīngît
this person
'this person'

ya´ łīngît
this person (a little farther away)
'this person'

(Swanton, 1911 p. 172)

Isolate **Haida**

gō´djai t!ēł x̣ a´tdju
the wolf wet small
‘The small wet wolf.’

(Swanton, 1911 p. 268)

ā´nîs ‘this region etc.’
wā´nîs ‘that region’

(Swanton, 1911 p. 261)

Hokan* **Yuman** **Diegueño**

pəya kumlay
this one the dead one
‘this dead person’

(Langdon, 1971 p. 171)

i:pac pu
Man Dem
‘ that man’

(Gorbet, 1976 p. 11)

Hokan* **Pomoan** **Eastern Pomo**

se canáy
brush thick
‘thick brush’

xá wa·rú
water muddy
‘muddy water’

bi·dáme wa·rúya
creeks muddy(PL)
‘muddy creeks’

(Mclendon, 1975 p. 123)

bá ? á·m
that thing
‘that thing’

(Mclendon, 1975 p. 182)

Hokan* **Chimariko**

qè´wot tca´ldan ā´wu ā´wa
this metal mountain house
‘this metal mountain house’

(Dixon, 1910 p. 341)

djo´pa-elo´ni
too-hot (continuous)
‘too hot’

(Dixon, 1910 p. 359)

Hokan* **Chumashan** **Ineseño**

ma-al-tasɨn ha mitɨpɨ’n>matasɨn ha mitɨpɨ’n
‘ a red door’ literally ‘one that is red, a door’

mamɨxɨxɨn ha xus
‘a hungry bear’ literally ‘one that is hungry, a bear’

(Chumash Language Lesson 8)

ke'ni ha č'ič i' or ke'n a č'ič i'
this child
'this child'

kwek'i ha huču or kwek' a huču
that dog
'that dog'

(Chumash Language Lesson 2)

Hokan* **Karok**

"An adjective is a noun which fulfills two conditions: 1) It occurs with {-sa} Plural, and 2) it occurs in compounds as a second member only, except in certain cases where it may be either first or second member, interchangeably" (Bright, 1957p. 69)

?asa-?úruh
rock-round
'round rock'

ikrívrám-?a·xkúniš
house-red
'red house'

?a·xkúniš-?ikrívra·m
red-house
'red house'

imniša-yav
cooking-good
'good cook'

(Bright, 1957 p. 69)

Hokan* **Shasta**

?im·áyahú
very fire that
'that very fire'

(Silver, 1966 p. 236)

? á·taxára·č<u>a·m·I</u>
salty-too intensifier
'too salty'

(Silver, 1966 p. 140)

Iroquoian **Seneca**

Kayɛtowa:neh
Game:big
'big game'

(Chafe, 1963 p. 31)

kakɛ:ɛt 'it is white'
kanɔ́hsakɛ:ɛt 'white house'

wa:ji:h 'it is black'
ʔóäʔtaji:h 'black feather'

(Chafe, 1963 p. 40)

The intensifier suffix *-htsih serves to intensify the meaning of whatever precedes it.

w'ę̨hdžih 'very far'
ónę̨hdžih 'a long time ago'

(Chafe, 1996 p. 571)

Keresan **Acoma**

cíčə k̉úuti
big, it is big mountain
'the big mountain'

k̉úuti cíčə
mountain big, it is big
'the big mountain'

(Miller, 1965 pp. 176-77)

wẻe ?úwẘåaka
that baby
‘that baby’

(Miller, 1965 p. 178)

= = **Kiowa-Tanoan** **Kiowa**

cenbó˚ él
cow big
‘big cow’

(Wonderly, Gibson & Kirk, 1954 p. 6)

ę́·de ip’ɔ́·gye
these babies
‘these babies’

(Wonderly, Gibson & Kirk, 1954 p. 5)

ę́·hɔ̀dè+k^{h}ì· gyà-kò·dó+sàl
this+day pl-very+hot
‘It is/was very hot today.”

(Watkins and McKensie, 1984 p. 210)

Muskogean **Choctaw**

súbah lúsa túklo mvt
horses black two those
‘those two black horses.’

súbah lúsa féhna túklo mvt
horses black very two those
‘those two very black horses’

(Nicklas, 1974 p. 280)

Penutian **Sahaptian** **Sahaptin**

t́u´laχ̣ wɛ·x̣t la´χ̣ wɛ·x̣t, ‘hot’
too hot
‘too hot’

(Jacobs, 1931 pp. 242-3)

i´**tc**ickinkidki
def-**this**-language-poss
‘this language of ours’

(Jacobs, 1931 p. 259)

= = **Siouan** **Dakota/Lakhota**

“The adjective follows the noun and is subordinate to it. The adjective is identical with the neutral verb. As a verb it retains its independent accent, as adjective it loses it.” (Boaz and Deloria, 1939 p. 69

sų´ka kį t‘ą´ ka’ ‘the dog is large’

sų´ka ka-t‘ą´ ka’ ‘large dog’

pté - t‘ą´ ka ‘a large buffalo’

hó -t‘ą´ ka’ ‘ a loud voice’

(Boaz and Deloria, 1939 p. 69)

wičháša thą́ka kį Note *thą́ka* is stative verb
man big DEF
‘the big man’

(Rood and Taylor, 1996 p.459)

lé ‘this near me’
hé ‘that at a distance, that referred to before
ká ‘that at a distance, but visible and pointed out

(Boaz and Deloria, 1939 p. 114)

ká	šų́ka-wakhą́	kį	wąláka	he?
That (yonder)	horse	the	you.see	question

‘Do you see that horse.’

(Rood and Taylor, 1996 p.456)

wičháša	óta	hená
men	many	those

‘those many men’

(Rood and Taylor, 1996 p.457)

…ną	li´la	’oi´yokpaza
…and	very	it was dark

‘ and it was very dark’

(Boaz and Deloria, 1939 p. 167)

Salishan	**Main Body**	**Squamish**	
With itr. verbs:	ta-hii^{l}	mi^{l}xaλ	‘the big bear’
	clitic –word		
with nouns:	ta- mi^{l}xaλ	smi^{l}c	‘the bear meat’
	clitic-word		

(Kuiper, 1967 p. 175)

ta-la^{l}mʔ	‘the house’
clitic-word	
th ^{l}ʔ la^{l}mʔ	‘that house’

(Kuiper, 1967 p. 175)

Tankelma-Kalapuya? Takelman Takelma

ya´p!a daldi`
person wild
‘wild person’

(Sapir, 1922 p. 256)

Indefinite	ga	
Near first	a’ga	‘this’
Near second	īdaga	‘that’
Near third	hā^{æ}ga	‘that yonder’

Īdaga	ya´p!a
that (near second)	person

‘that person there’

(Sapir, 1922 p. 252)

Isolate Tunica

ta´yoronĭku	?o´ni-lapú
Tunica	people-good

‘The Tunica are good people’

(Haas, 1946 p. 362)

hē ku
this male person
‘this male person’

hē sin
these female persons
‘these female persons’

a-i hą´tū
fire this little
‘this little fire’

(Swanton, 1921 p. 25)

la´pu-panú
good-very
‘very good’

(Haas, 1946 p. 365)

Uto-Aztecan **Takic** **Luiseño**

Adjectives are declined just like (animate) nouns:

Hunwut	paapavish	‘a thirsty bear’ (S)
Hunwuti	paapavichi	‘a thirsty bear’ (O)
Hunwutum	paapavichum	‘thirsty bears’ (S)
Hunwutumi	paapavichumi	‘thirsty bears’ (O)

(Grune, 2006 p. 3)

wunalum	weh	atáxum
those	two	people

Those two people [Indians].

(Malécot p. 208)

no	tiwʔyax	aná·matmi	pominuk	momkutmi
I	see-past	fish	very	large

‘I saw a very large fish.’

(Kroeber and Grace, 1960 p. 200)

Uto-Aztecan **Numic** **Souther Paiute**

aŋqa	‘to be red’	aŋqa´q·anI	‘red house’ (stative verb)

mia´’-p·ïχanints·
little house
‘little house’

(Sapir, 1930 p. 204)

m^{w}áŋ	cɨna´ŋwav
that (visible)	coyote

‘that coyote

Uto-Aztecan **Southern-Sonoran** **Papago**

’I:da ’o’odham ’o ñeok.
this person is speak
‘This person is speaking.’

Cipkan ’o hegai ’uwĭ.
Work is that woman
‘That woman is working.’

(Zepeda, 1983 p. 8)

Hegai s-ke:g ’uwĭ ’o an ke:k ñ-we:nag hugidan.
That attractive woman is standing next to my brother.
‘That attractive woman is standing next to my brother.’

S- ke:g ’o wud ’uwĭ g Kristina
Attractive aux copula linking word woman a(n) Kristina
‘Kristina is an attractive woman.’

(Zepeda, 1983 p.114)

= = **Yukian** **Wappo**

ʔo(n)-nùćeˑ
people-small
children

(Mithun, 1999 p. 554)

chica tuć́a
bear big
‘big bear’

chica tuć́a ḱena
bear big tall
‘big tall bear’

(Li, Thompson and Sawyer, 1977 p. 86)

hɛ this
wɛ this
tsɛ that
tɛ that
ka that (yonder)

(Raddin, 1929 p 136)

= = **Yuchian** **Yuchi**

go-yáłí-nɛ-wɛ́nɔ lɛ- wɛ́nɔ wàtnɛ- nɛ-wɛ́nɔ go-yɔn-tá
Hu-young-nom.non.Yuchi that-non.Yuchi women-RDP-NON Hu-non.YU-want
'Young men wanted to marry those young women.'

(Mithum, 1999 p. 573)

Isolate **Zuni**

hiš tenan co?ya-?a
very song to be pretty
' a very pretty song'

(Newman, 1947 pp. 74-75)

uhsona ma·ki kwa antecemanam·e ikane?a
that one young woman not does not want him he was angry
'This young woman did not want him. He was angry.

(Mithun, 1999 p. 586)

Mesoamerica

Stock	Family	Sample language
Otomanguan	**W. Branch**	**Chichimec**

kàzú mare
ox old
'old ox'

kàzú-s mare-s
ox (dual) old (dual)
‘two old oxen’

(De Agulo, 1933 p. 183)

Tequistlatec-Jiqaque **Chontal**

Láw’a awáata
the-little girl
‘the little girl’

(Waterhouse, 1962 p. 69)

gà elkóofiʔ
this pot
‘this pot’

(Waterhouse, 1962 p. 99)

= = **Mixe-Zoque** **Mixe**

tuˈˈg maˊ poːb ʔuk
a big white dog
‘a big white dog’

(Van Haitsma et al., 1976 p. 74)

daˑ kip̃
this tree
‘this tree

diaːb nek̃
this paper
‘this paper’

(Van Haitsma et al., 1976 p. 73)

ha·nc̃ ʔoy mg^{ll}z̃ɨ^{ll}g̃
really pretty you look
‘You look really pretty.’

(Van Haitsma et al., 1976 p. 76)

.

South America

Stock	Family	Sample language

Pano-Tacanan **Panoan** **Cashinahua** **Sabela**

mawa juni pe -ki
very man good is
‘He is a very good man.’

(Cromack, 1969 p. 105)

ja juni-kuin
that Cashinawa
‘that Cashinawa’

na ji xadabu
these poles useful
‘these useful poles’

(Cromack, 1969 p. 120)

Appendix IV: Scoring Procedure for Marking Type and Morphological Complexity

Scoring steps for Head or Dependent Marking

In order to determine H/D marking status, the following formula is used:

D/(D+H+F)

Where D is morphological markings on the dependent
Where H is morphological markings on the head
Where F is morphological markings that are free or floating

A language with a proportion of 0 would be considered a pure head marking type. Those languages with a proportion of 0.0-0.3 would constitute a head marking type.

A language with a proportion of 1 would be considered a pure dependent marking type. Those languages with a proportion of 0.7-1.0 would constitute a dependent marking type.

A language with a score of .5 would be considered a prototypical split or double marking type. Those languages with a proportion of 0.4-0.6 would constitute a split/double marking type.

Once a proportion is identified the next step is to multiply by 10 so that the scoring reflects the same order of magnitude as the other scores. Thus:

Raw H/D	Gross H/D type
0.0 to 3.0	Head marking
4.0 to 6.0	Double/split marking
7.0 to 10.0	Dependent marking

Scoring steps for Morphological Complexity

Complexity is based on the total number of D (dependent), H (head) and F (free, floating or unattached) points for the NP and Sentence (Noun or pronoun subject, direct object, and indirect object). Prepositional phrases are not included in the scoring as too many languages do not have PP's. While theoretically it was possible for the total number of points to be 27, in actuality, the totals found never exceeded 15. Thus:

Raw complexity	Gross complexity
1 to 5	low complexity
6 to 10	moderate complexity
11 to 15	high complexity

Adapted from Nichols (1992)

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